10¢ A COPY

The OIL WEEKLY

Exclusively Devoted To The Production and Transportation of Oil and Gas

Engineering News Statistics

October 4 1929 Volume 55. No. 3

THE "BJ"

REAMER DISC BIT

Requires less weight on bottom, resulting in faster drilling and straighter hole.

Reams as it cuts and leaves the hole absolutely to gauge.

A simple, sturdy, first quality tool that will pay for itself over and over again.

OIL TOOL DIVISION OF

BYRON JACKSON CO.

2150 East Slauson Avenue, Los Angeles, California

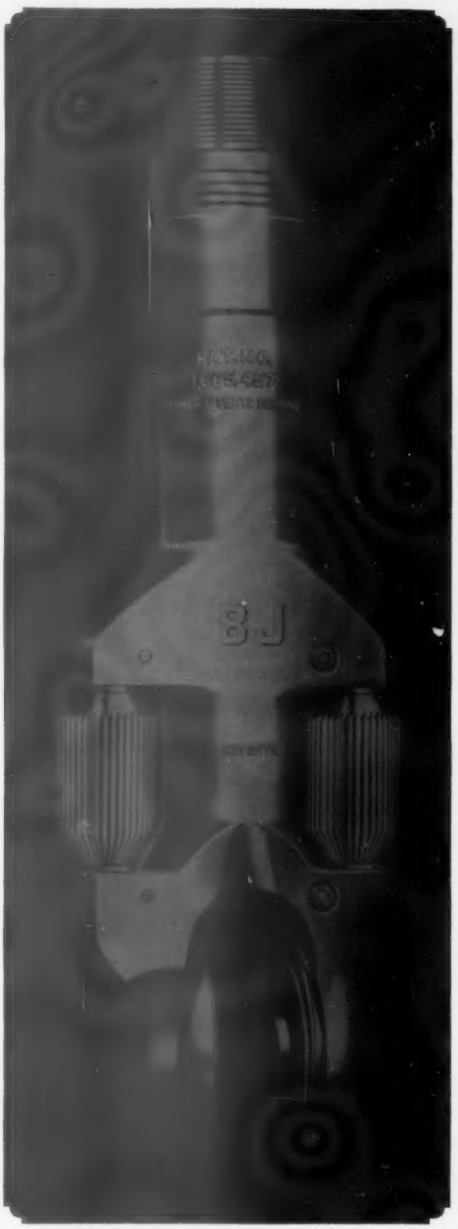
Tulsa, Okla. *(Warehouse)* 214 E. Brady St.

Oklahoma City *(Warehouse)* 2603 So. Walker Ave.

Houston, Texas. 1915 Post-Dispatch Bldg.

Fort Worth, Texas, 814 Dan Waggoner Bldg.

New York City, 1245 Graybar Building

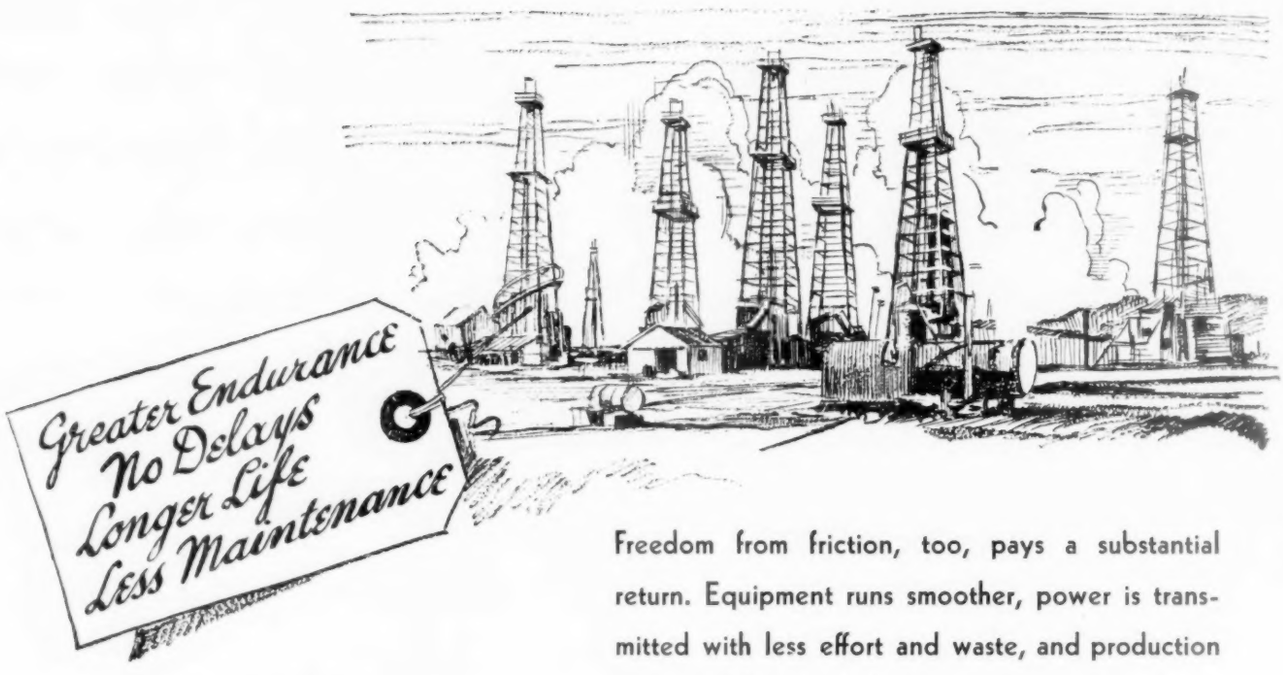


Patented and patents pending.

—with HYATTIZED equipment

The reassuring fact that Hyatt Roller Bearings are backed by years of proved performance in oil fields everywhere, means that operators recognize and utilize the saving qualities of Hyattized equipment.

Saving because Hyatt bearings reduce attention, lubrications, breakdowns, time and labor losses. Saving because they stand up under the steady grind of severe operating demands, and prolong life as they serve.



At the Exposition

Hyatt Roller Bearings for oil well machinery are on display at spaces 78 and 79 Texas Building.

Freedom from friction, too, pays a substantial return. Equipment runs smoother, power is transmitted with less effort and waste, and production is noticeably speeded up.

Hyatt Roller Bearings make for better performance and better business. That's why the majority of oil well equipment builders include Hyatt bearings, by preference, for your protection.

HYATT ROLLER BEARING COMPANY

Newark Detroit Chicago Pittsburgh Oakland

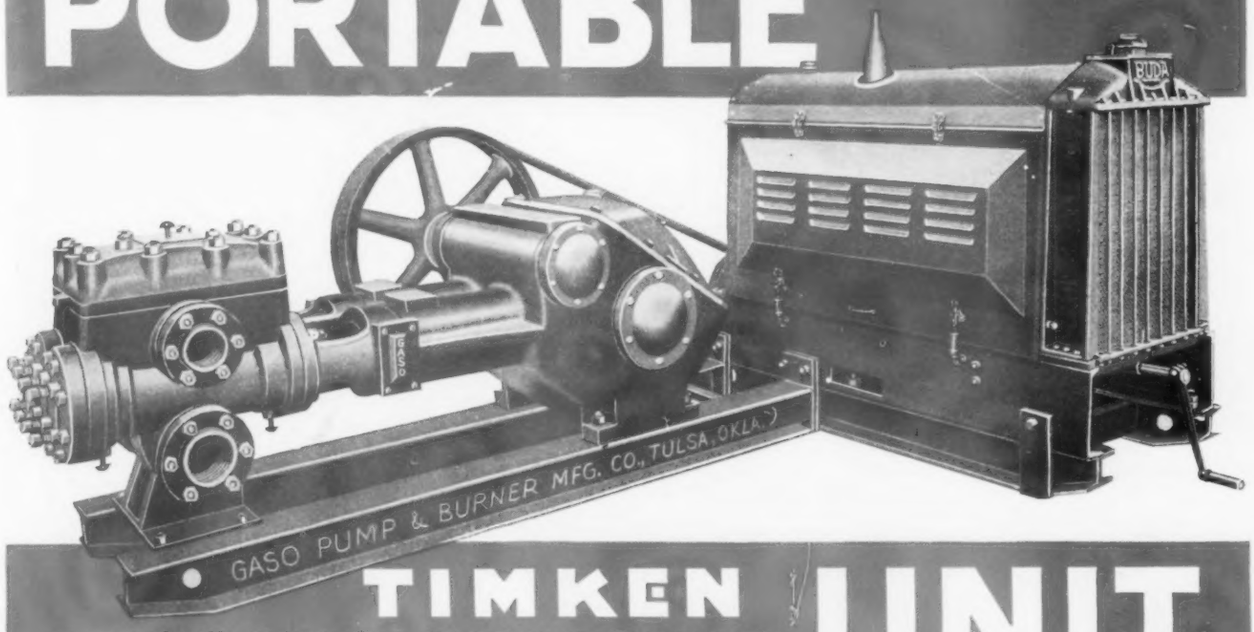
HYATT

ROLLER BEARINGS

PRODUCT OF GENERAL MOTORS

The OIL WEEKLY. Issued weekly by the Gulf Publishing Co., 33 01 Buffalo Drive, Houston, Texas. Subscription price $1.00 per year; 10 cents per copy. Entered as second-class mail matter December 23, 1916, at the post office at Houston, Texas, under act of March 3, 1837.

PORTABLE



TIMKEN BEARING PUMPING UNIT

GASO Fig. 1508 Pump—mounted on H-Beam skids with V-Rope Drive from Buda 90 H.P. gas or gasoline Engine—offers dependable, economical and convenient operation in temporary or permanent service.

This compact GASO Portable Pumping Unit is easily transported and quickly put into service, thus being an ideal unit for temtorary installations.

Timken main and pinion bearings—continuous tooth Herringbone gears—H-column connecting rod with babbitt-lined, removable bronze shell at crank end—and an oil-tight crank case, with every moving part running in an oil bath—are features which insure efficiency and long life, and make this an economical unit for permanent service.

Interchangeable liner fluid end gives capacities varying from 63 bbls. per hour at 800 lbs. pressure to 250 bbls. per hour at 250 lbs. pressure.

GASO PUMP & BURNER MFG. COMPANY

210 Petroleum Bldg.
Fort Worth, Texas

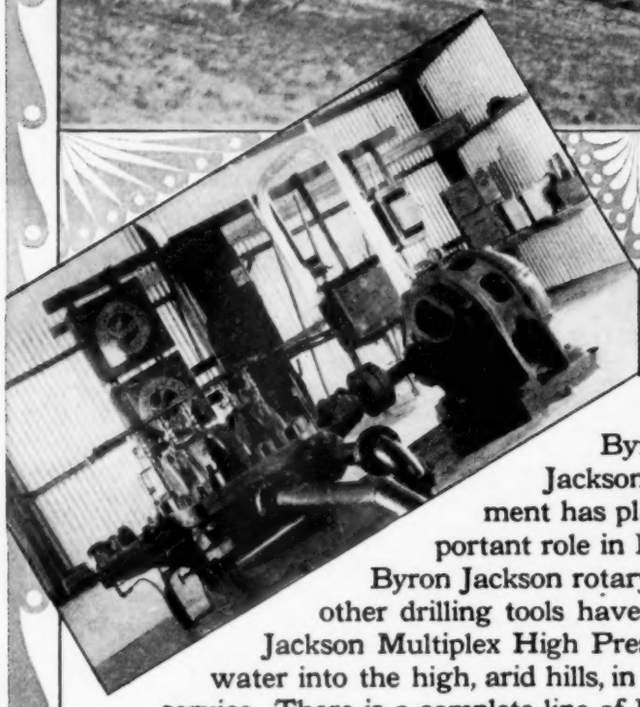
TULSA, OKLAHOMA

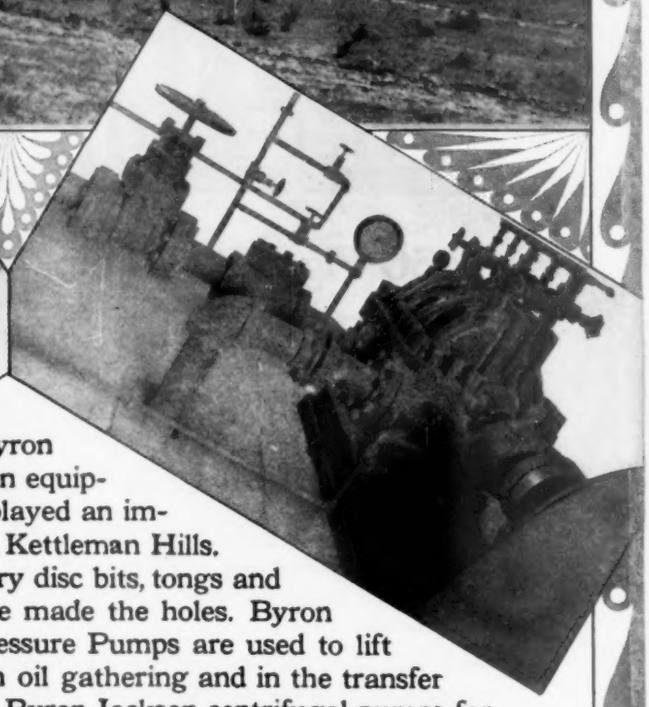
535 Fifth Avenue
New York, N. Y.

GASO PUMPS

for every oil industry need

KETTLEMAN HILLS





Byron Jackson equipment has played an important role in Kettleman Hills. Byron Jackson rotary disc bits, tongs and other drilling tools have made the holes. Byron Jackson Multiplex High Pressure Pumps are used to lift water into the high, arid hills, in oil gathering and in the transfer service. There is a complete line of Byron Jackson centrifugal pumps for every use in the oil industry. Write for bulletin and Pipe Line Friction Chart.

SINCE 1872

BYRON JACKSON CO.

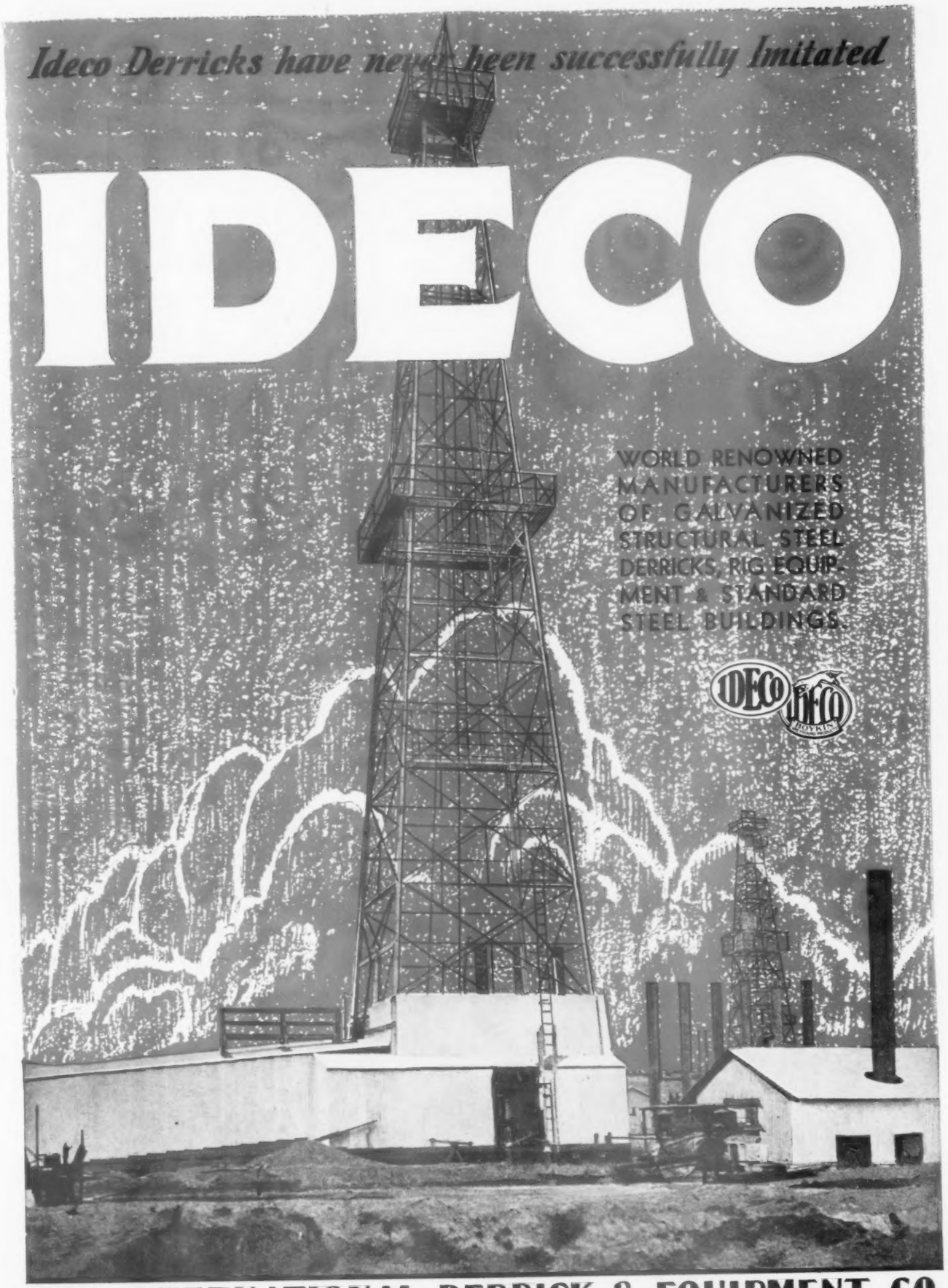
Factories: BERKELEY, Los Angeles, Visalia, Calif.

Branches: NEW YORK and CHICAGO

San Francisco, Portland, Salt Lake, Tulsa, Dallas, Phoenix

BYRON JACKSON

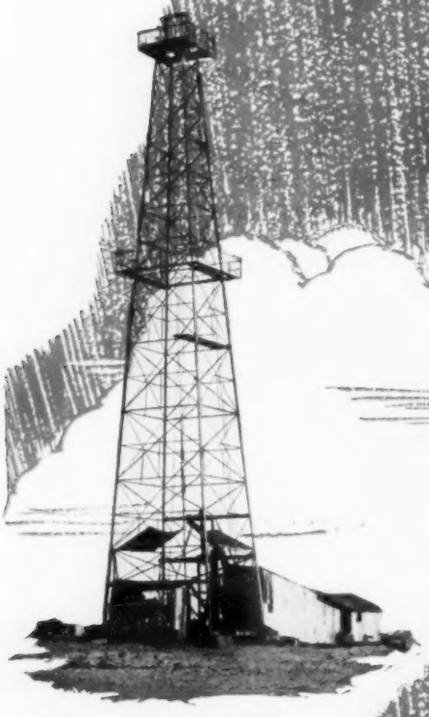
CENTRIFUGAL PUMPS FOR EVERY SERVICE


Ideco Derricks have never been successfully Imitated
IDECO
WORLD RENOWNED MANUFACTURERS OF GALVANIZED STRUCTURAL STEEL DERRICKS, RIG EQUIPMENT & STANDARD STEEL BUILDINGS.
IDECO

THE INTERNATIONAL DERRICK & EQUIPMENT CO.

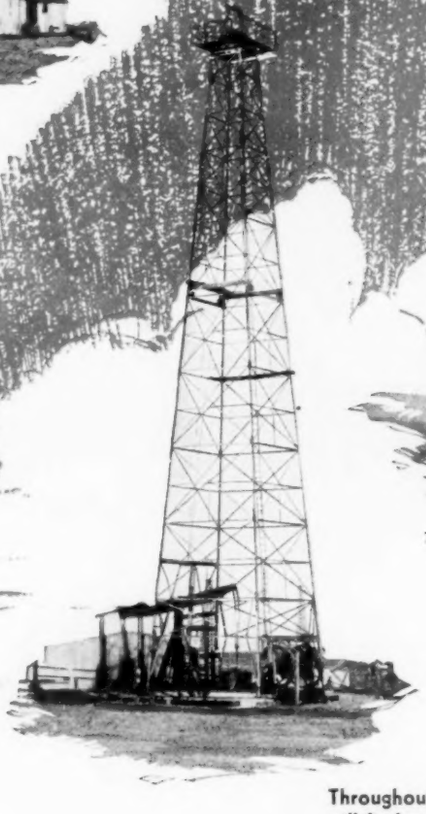
IDECO doesn't imitate—it creates—whether with its towering new California 136 footer or its modest 64 foot pumping derrick. Each for its place and purpose. IDECO engineers have designed them from galvanized structural steel—for safety, speed, convenience and economy.

IDECO



A 122 foot IDECO Derrick in use for Rotary Drilling..meeting the unqualified approval of drillers and operators.

One of the thousands of IDECO Structural Steel 84 foot Production Derricks on location in West Texas.

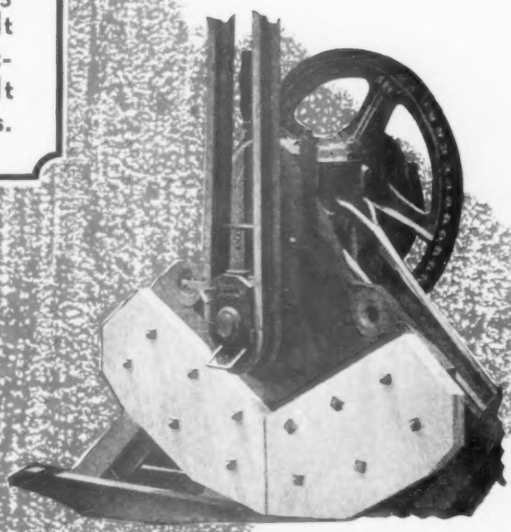


Throughout Oklahoma you will find many such IDECO Derricks, in both drilling and production service.

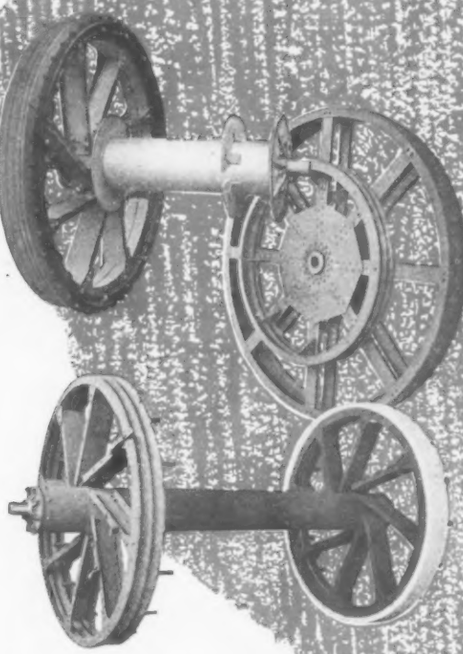
THE INTERNATIONAL DERRICK & EQUIPMENT CO.

BENEATH your IDECO Derrick put IDECO Rigs and Wheels — fitting mates to the superb towers above. It insures the permanence of your investment, on one location or many. It means faster work and fewer shut-downs.

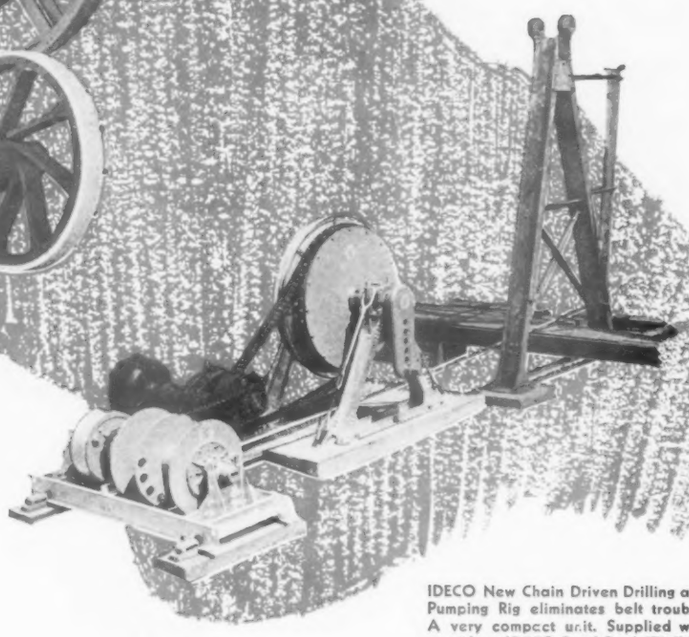
IDECO



The IDECO Long Stroke Crank Counter Balance increases production and lowers cost. Power peaks and pauses in the load are eliminated, reducing rod trouble, belt failure and wear on the machinery.



IDECO Steel Wheels are constructed to combine fine balance and brute strength. Special features are Removable Gudgeons and Rolled Channel Steel Tug Rims with deep V grooves, increasing power and preventing slipping.



IDECO New Chain Driven Drilling and Pumping Rig eliminates belt trouble. A very compact unit. Supplied with or without IDECO Sand Reel, Walking Beam, Pitman or Counter Balance.

THE INTERNATIONAL DERRICK & EQUIPMENT CO.

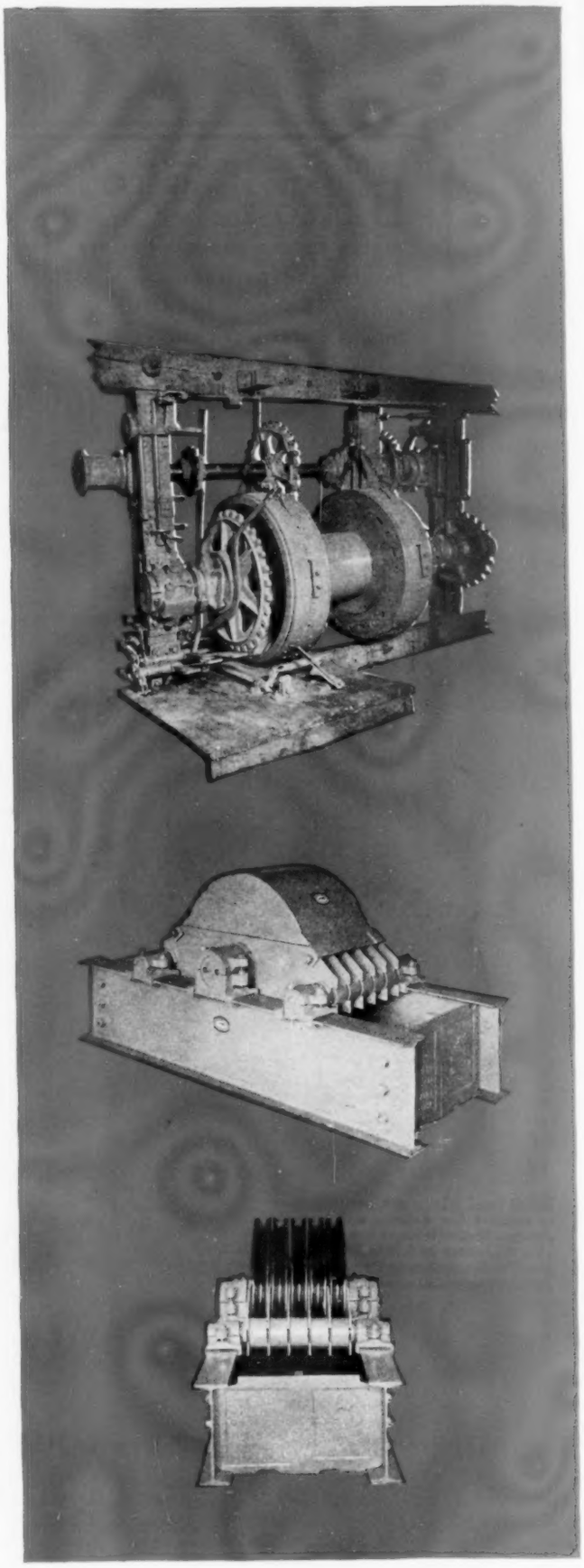
The

BOYKIN

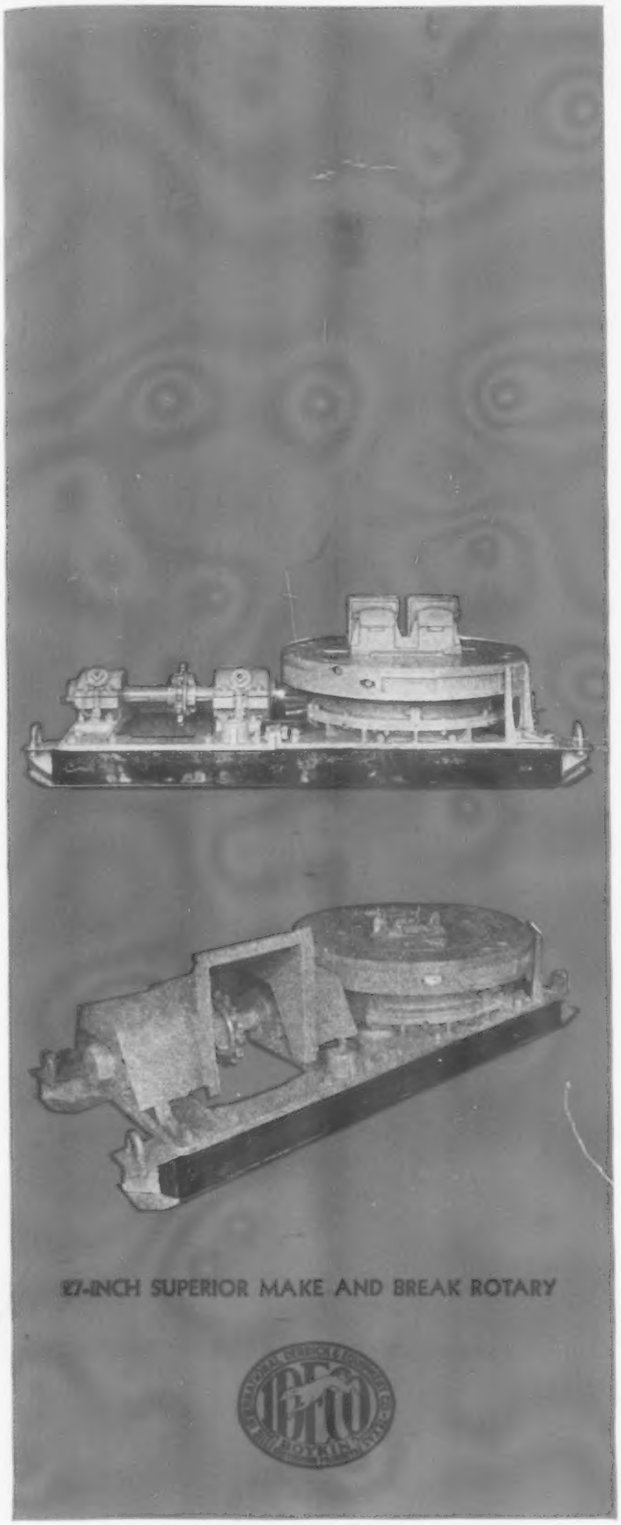
GREYHOUND LINE BECOMES

IDECO

One of the features of IDECO'S outdoor display at the Petroleum Exposition is that IDECO presents for the first time, in addition to many other new and improved items of drilling and pumping equipment, the latest Boykin Greyhound Rotary drilling machinery now manufactured by the Boykin Division of the International Derrick & Equipment Company.



THE INTERNATIONAL DERRICK & EQUIPMENT CO.



27-INCH SUPERIOR MAKE AND BREAK ROTARY

greater speed
smoother operation
roller bearings

The new 27" Superior Rotary will out-perform and outlast any you have ever used. It is the embodiment of all those improvements you have ever hoped for in rotary construction. Being of the Boykin famous make and break type it is quickly changed from a make-up position to the break-out position by lifting the spider by the catline until the teeth are disengaged. Slides are then moved out and spider lowered so that it becomes part of the table and revolves with it.

The main table, spider, table and bearing box base, pinion and sprocket are made of chrome nickel steel, thus assuring long life to these vital parts. The table revolves on pack hardened cones or extra hard steel ball bearings, either of which is optional with the purchaser. The 3 15/16" pinion shaft rotates on 4" Hyatt Roller Bearings. The steel sprocket on this shaft is adjustable 12", thus assuring proper alignment with the draw works.

The main table has a diameter of 57" and is capable of receiving a 27" fish-tail or rock bit. The entire rotary is mounted on 8" H beam steel skids 10' in length with U bolts at each end to facilitate handling.

The bearing boxes, table hold-down, and cone races are provided with connections for Alemite lubrication. The cone races are entirely encased to keep out mud and grit. A heavy gauged steel sheeting hood completely covers the bearing boxes and serves as a guard for the pinion sprocket. These rotaries can be equipped with the famous BOYKIN PATENTED GRIEF STEM DRIVE.

A new pamphlet thoroughly describing this new four-speed reduction gear draw works will be mailed upon request.

THE INTERNATIONAL DERRICK & EQUIPMENT CO., Columbus, Ohio, Los Angeles, Cal.

Plants: Columbus, Delaware, Ohio; Houston, Beaumont, Texas; Torrance, California. *Sale Offices:* Columbus, Ohio; New York City, N. Y.; Detroit, Michigan; Tulsa, Oklahoma; Ft. Worth, Houston, Texas; Shreveport, Louisiana; Wichita, Kansas; Denver, Colorado; Los Angeles, California; Maracaibo, Venezuela. *Warehouses and Yards:* Columbus, Ohio; Tulsa, Seminole, Tonkawa, Drumright, Okemah, Wewoka, Maud, Sasakwa, Allen, Oklahoma City, Oklahoma; El Dorado, Wichita Heights, Kansas; Bakersfield, Taft, Torrance, California; Houston, Big Spring, Odessa, Pyote, Pampa, Borger, Mexia, Luling, Texas; Shreveport, Lake Charles, Louisiana; El Dorado, Smackover, Arkansas.

Export Representation—72 Trinity Place, New York City; Columbus, Ohio; Houston, Texas; Los Angeles, California.

4-SPEED REDUCTION » » GEAR « « DRAW WORKS

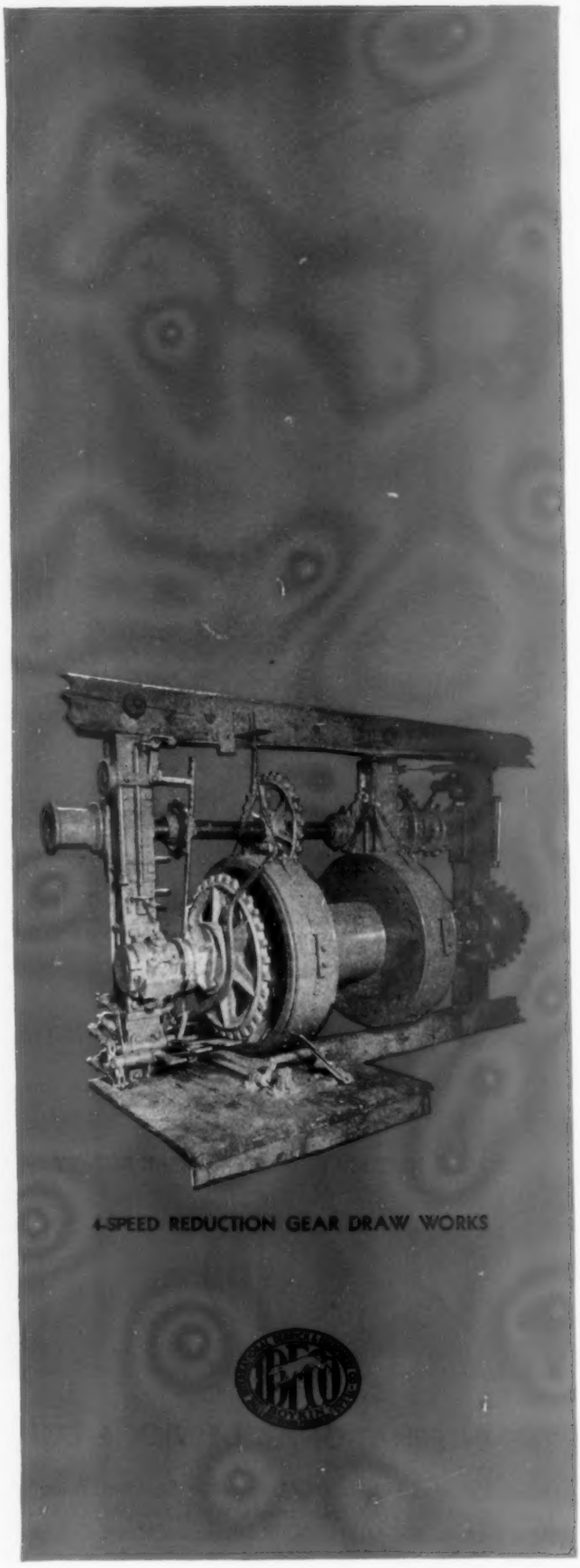
Has longer life
Greater power
Increased efficiency

The Boykin Draw Works has been pronounced by oil drillers as the most simple to operate and maintain on the market. In fact it has fewer parts than others. The Boykin Greyhound Draw Works has the largest per square inch Breaking Surface. Its big spool has saved operators many thousands of dollars in lines.

The lubricating system is so arranged that it affords complete oiling of all bearing surfaces and needs oiling about once a week. The Company has never had a case come to its attention of these Draw Works running even warm. Protected so that dirt does not get into bearing surfaces. All adjustments are from the rear.

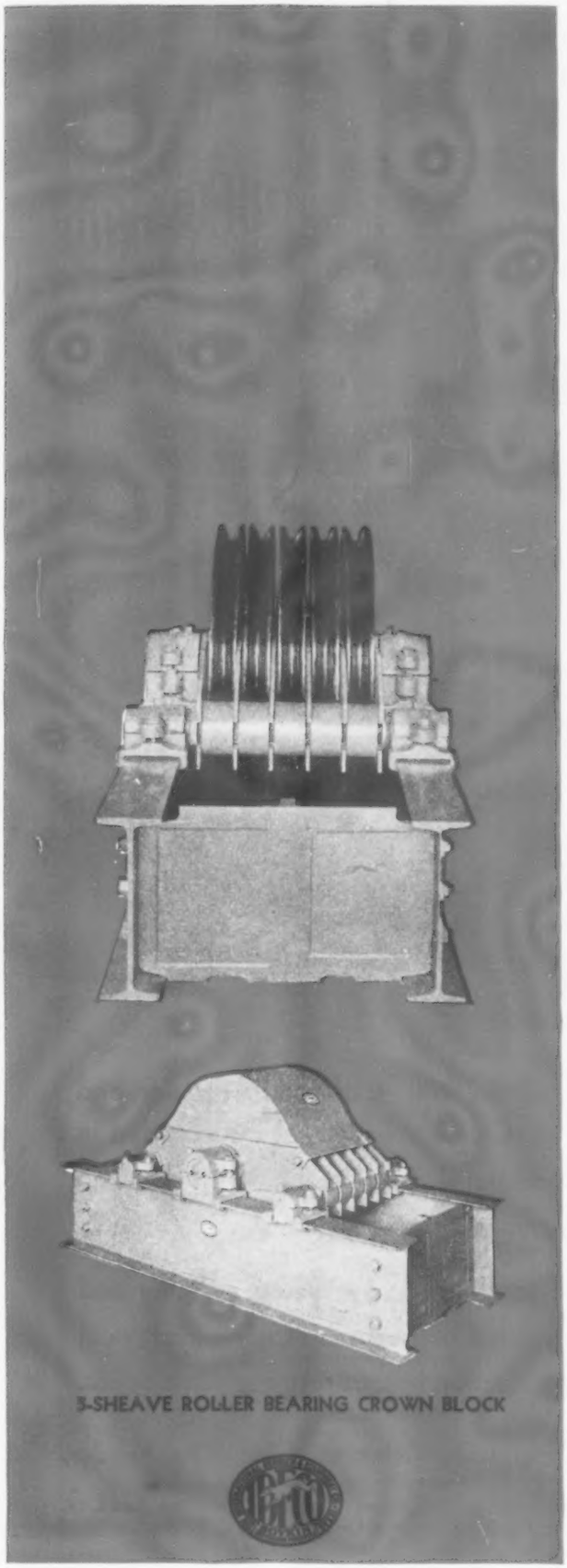
Spools are double-flanged and made from chrome nickel steel castings. Strong, mechanically right, easily adjusted. Made with 16- and 24-inch spools.

A new pamphlet thoroughly describing this new four-speed reduction gear draw works will be mailed upon request.



4-SPEED REDUCTION GEAR DRAW WORKS

THE INTERNATIONAL DERRICK & EQUIPMENT CO.



5-SHEAVE ROLLER BEARING CROWN BLOCK

is faster . . . carries more weight is easier on lines

Another recent addition to the IDECO Boykin Greyhound line is this new five-sheave Crown Block. It is compact, rigid, sturdily constructed and will render superior service. Among its many features are extra large sheaves, smooth running, perfect alignment, ease of handling and American Heavy Duty Roller Bearings.

You have a choice of either chrome nickel or Manganese steel sheaves, the grooves of which are machined to A-P-I specifications and will give maximum wear to the line. These sheaves are 36" in diameter. The trunions are made of special analysis steel ground and polished to size.

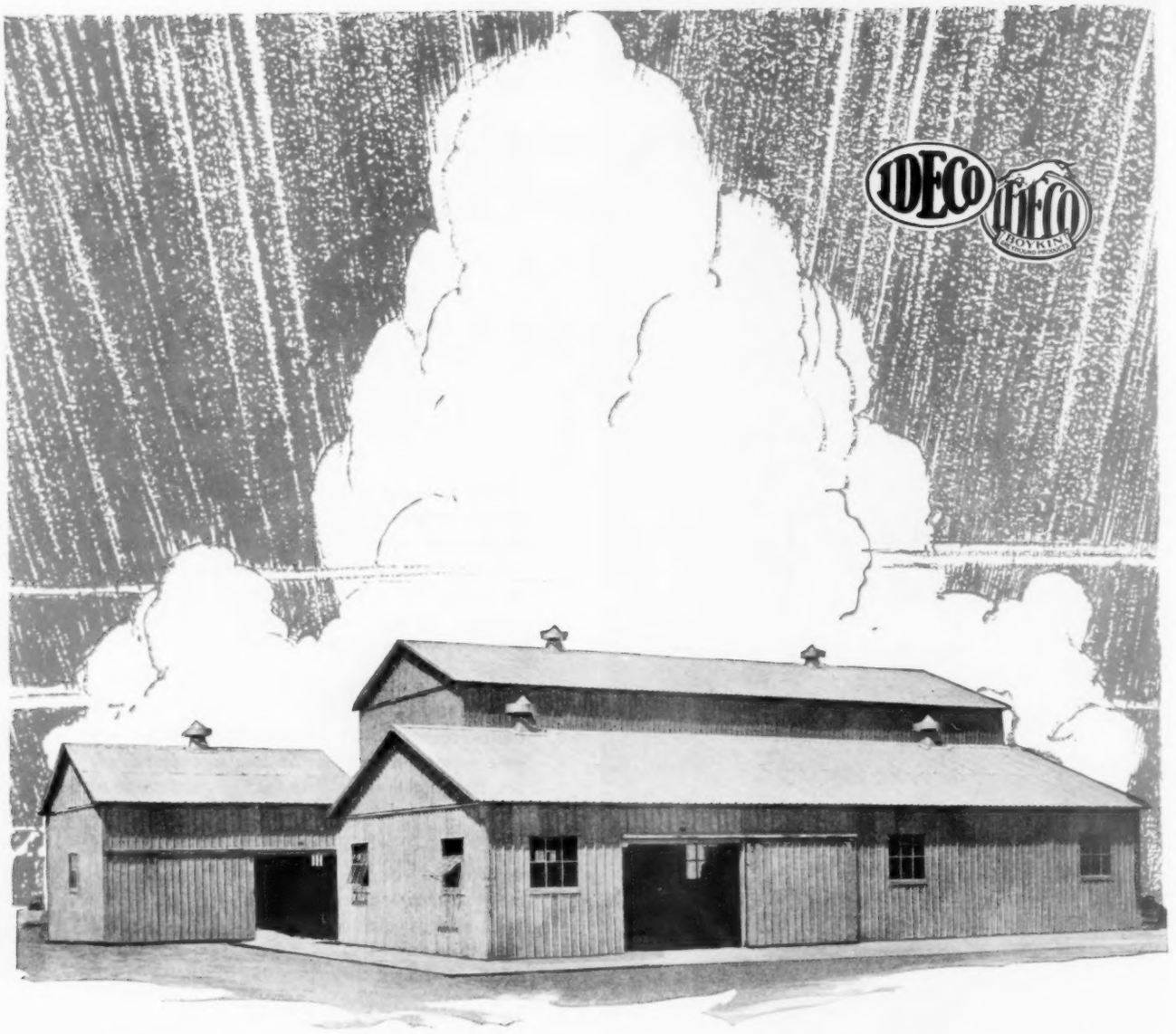
In order to keep each sheave in perfect alignment spaces are provided between each. The end spaces are moveable, which makes it possible to transfer lines from one sheave to another without disturbing the block.

The dead line sheave, fastened on the bottom flange of the beam is adjustable to any position. When not in use it swivels to one side out of the way.

The crown block is mounted on 18"—54.7 I Steel beams 7'6" long, the center beam, 5 15/16" in diameter and 36½" in length. The sheaves are covered with a guard of heavy gauge sheet iron that is closely fitted to the sheaves to prevent any possibility of the line overriding the grooves.

A new pamphlet thoroughly describing this new four-speed reduction gear draw works will be mailed upon request.

THE INTERNATIONAL DERRICK & EQUIPMENT CO.



IDECO Standard Steel Buildings have all the virtues of standardization and all the individuality of tailor-made jobs. Our engineers have succeeded in working out a system of interchangeable sectional panels and parts so that you may purchase an IDECO Building to suit your specific needs.

IDECO Buildings are not only attractive in appearance—they are strong and weather tight and can be furnished insulated if desired. Galvanized steel frames, sash and sheeting offer complete protection against rust, corrosion or fire.

THE INTERNATIONAL DERRICK & EQUIPMENT CO., Columbus, Ohio, Los Angeles, Cal.

Plants: Columbus, Delaware, Ohio; Houston, Beaumont, Texas; Torrance, California. *Sale Offices:* Columbus, Ohio; New York City, N. Y.; Detroit, Michigan; Tulsa, Oklahoma; Ft. Worth, Houston, Texas; Shreveport, Louisiana; Wichita, Kansas; Denver, Colorado; Los Angeles, California; Maracaibo, Venezuela. *Warehouses and Yards:* Columbus, Ohio; Tulsa, Seminole, Tonkawa, Drumright, Okemah, Wewoka, Maud, Sasakwa, Allen, Oklahoma City, Oklahoma; El Dorado, Wichita Heights, Kansas; Bakersfield, Taft, Torrance, California; Houston, Big Spring, Odessa, Pyote, Pampa, Borger, Mexia, Luling, Texas; Shreveport, Lake Charles, Louisiana; El Dorado, Smackover, Arkansas.

Export Representation—72 Trinity Place, New York City; Columbus, Ohio; Houston, Texas; Los Angeles, California.

The NEW LeBus
Circulating and Releasing
Overshot
IS Dependable

Patent No. 1493350
Other Patents Pending

It Operates SO simply—

—that LE BUS does not hesitate to GUARANTEE its results. Out in the field it is GIVING trouble-free service to thousands of different operators . . . CATCHING the "fish" . . . RELEASING when desired . . . and PACKING OFF the "fish" when circulating.

Note Its Features:

—Made from FORGED STEEL
—with ACME THREADS
—and FINE-WICKERED releasing Slips, with full 1-in. pitch
—that gives instant and positive RELEASE
—and PACKER attachment which makes perfect joints.

LE BUS PATENTED OIL WELL TOOLS

LeBUS Automatic Cathead
LeBUS Slipsocket Overshot
LeBUS Eureka Tongs
LeBUS Breakdown Post
LeBUS Bottom Hole Plug
LeBUS Outside Drill Pipe Cutter
LeBUS Inside Pipe or Casing Cutter

AT YOUR DEALERS

Order from Your Nearest Supply House

MANUFACTURED BY THE

LE BUS ROTARY TOOL WORKS

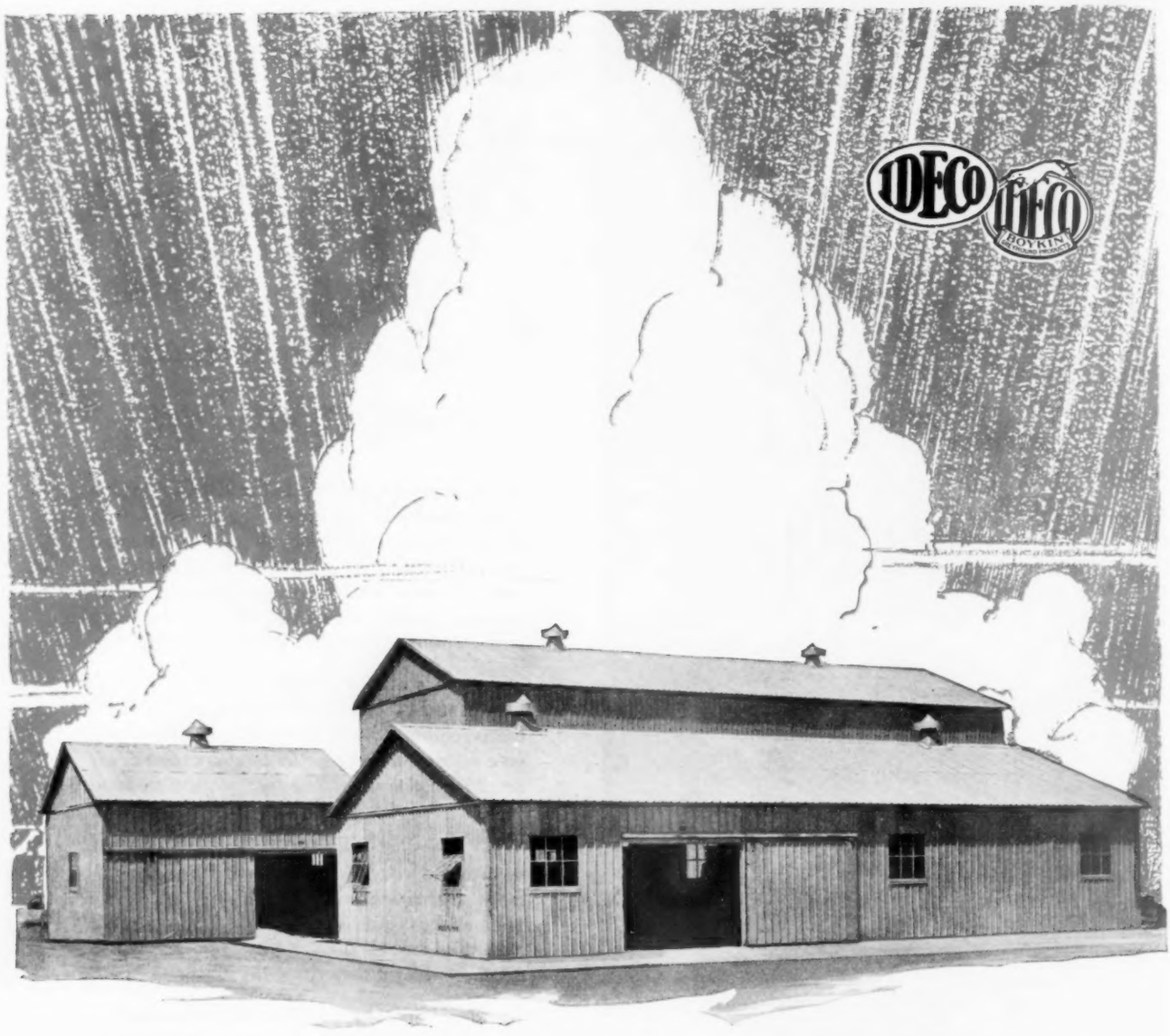
ELECTRA, TEXAS

District Agents:

P. F. Murray, Montibello, Calif.
California Agent

Paul Reid, Houston, Texas
Gulf Coast Agent

T. H. Brown,
West Texas and Panhandle Agent



IDECO Standard Steel Buildings have all the virtues of standardization and all the individuality of tailor-made jobs. Our engineers have succeeded in working out a system of interchangeable sectional panels and parts so that you may purchase an IDECO Building to suit your specific needs.

IDECO Buildings are not only attractive in appearance—they are strong and weather tight and can be furnished insulated if desired. Galvanized steel frames, sash and sheeting offer complete protection against rust, corrosion or fire.

THE INTERNATIONAL DERRICK & EQUIPMENT CO., Columbus, Ohio, Los Angeles, Cal.

Plants: Columbus, Delaware, Ohio; Houston, Beaumont, Texas; Torrance, California. *Sale Offices:* Columbus, Ohio; New York City, N. Y.; Detroit, Michigan; Tulsa, Oklahoma; Ft. Worth, Houston, Texas; Shreveport, Louisiana; Wichita, Kansas; Denver, Colorado; Los Angeles, California; Maracaibo, Venezuela. *Warehouses and Yards:* Columbus, Ohio; Tulsa, Seminole, Tonkawa, Drumright, Okemah, Wewoka, Maud, Sasakwa, Allen, Oklahoma City, Oklahoma; El Dorado, Wichita Heights, Kansas; Bakersfield, Taft, Torrance, California; Houston, Big Spring, Odessa, Pyote, Pampa, Borger, Mexia, Luling, Texas; Shreveport, Lake Charles, Louisiana; El Dorado, Smackover, Arkansas.

Export Representation—72 Trinity Place, New York City; Columbus, Ohio; Houston, Texas; Los Angeles, California.

The NEW LeBus
Circulating and Releasing
Overshot
IS Dependable

Patent No. 1493350
Other Patents Pending

It Operates SO simply—

—that LE BUS does not hesitate to GUARANTEE its results. Out in the field it is GIVING trouble-free service to thousands of different operators . . . CATCHING the "fish" . . . RELEASING when desired . . . and PACKING OFF the "fish" when circulating.

Note Its Features:

—Made from FORGED STEEL
—with ACME THREADS
—and FINE-WICKERED releasing Slips, with full 1-in. pitch
—that gives instant and positive RELEASE
—and PACKER attachment which makes perfect joints.

LE BUS PATENTED OIL WELL TOOLS

LeBUS Automatic Cathead
LeBUS Slipsocket Overshot
LeBUS Eureka Tongs
LeBUS Breakdown Post
LeBUS Bottom Hole Plug
LeBUS Outside Drill Pipe Cutter
LeBUS Inside Pipe or Casing Cutter

AT YOUR DEALERS

Order from Your Nearest Supply House

MANUFACTURED BY THE

LE BUS ROTARY TOOL WORKS

ELECTRA, TEXAS

District Agents:

P. F. Murray, Montibello, Calif.
California Agent

Paul Reid, Houston, Texas
Gulf Coast Agent

T. H. Brown,
West Texas and Panhandle Agent

10 YEARS OLD THIS MONTH

	1919	1929
Daily crude production (bbls)	2,800	30,000
Producing properties (acres)	8,000	58,500
Producing wells	112	1,300
Undeveloped properties (acres)	139,000	620,000
Employees	400	3,200

Careful selection and operation of properties, strict adherence to an ideal of quality in making its six products, and sound, aggressive marketing plans—these are responsible for the startling growth of Skelly Oil Company from its first year, 1919, to its tenth, 1929.

Quality Has No Substitute

SKELLY

THE NEW TAGOLENE MOTOR OIL

SKELLY AROMAX GASOLINE

SKELLY Refractionated GASOLINE

SKELLY Aviation GASOLINE

SKELGAS

SKELLY NATURAL GASOLINE

SEE The SKELLY BOOTH at the EXPOSITION

THE six major products of Skelly Oil Company are exhibited in an elaborate booth at the International Petroleum Exposition. Make the acquaintance of this entire family of products—and of the Skelly "family" of men and women, also.

SKELLY OIL COMPANY

General Offices—TULSA

Refinery—EL DORADO, KANS.

Branches—Kansas City, Omaha, Minneapolis, Des Moines, St. Louis, Chicago

Do you think it's

Too Good to be True?

Every plant superintendent has dreamed of the time when his plant would be trouble-proof

YES, your plant can be made trouble-proof as far as the flexible couplings are concerned. Flexible coupling troubles can actually be made a thing of the past.

What is it that causes coupling shut-downs in your plant? Almost invariably replacing broken springs, rings, bushings, pins, discs or grids—flexible materials that fatigued and failed. Eliminate the flexible materials and the problem is solved!

How? Fast answered that question. As the diagram below shows, two spur gears are in complete and continuous mesh with the internal gears of a floating sleeve. The sleeve takes a neutral position, the error in misalignment is taken up between the lubricated faces of the gear teeth, and all necessity for flexible materials is eliminated.

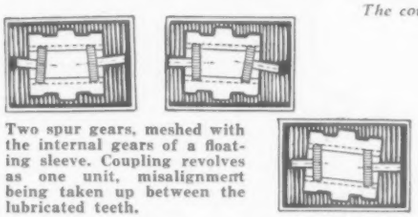
It has been demonstrated mathematically, experimentally and in actual operation of tens of thousands of couplings that there is no metal-to-metal contact between the gear teeth. The oil in the sleeve, under the centrifugal pressure due to revolving of the shafts, is thrown between the faces of the gear teeth, providing an actual oil cushion that carries the load.

If you are purchasing new equipment—or if you have a danger drive with which you have recurring coupling troubles—let us know. Tell us the kind of equipment, the kind of service, the H. P., the R. P. M., and the shaft diameters, and we will submit prices at once. You will be surprised to find (in most cases) that the cost of the Fast's Coupling is little if any more than the old style. But the difference in performance is so marked that Fast's Couplings are always cheapest in the end.

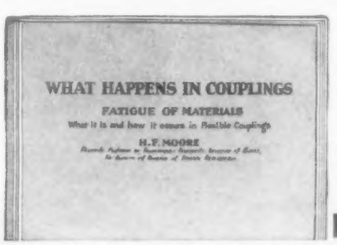
Also do not fail to send the coupon for the extremely illuminating book by Prof. Moore on "What Happens in Couplings." It's valuable, but it's free. Send for it.

FAST'S
Self-Aligning
COUPLING

The coupling without flexible bushings, pins, springs, discs, grids or any other flexible materials.



Two spur gears, meshed with the internal gears of a floating sleeve. Coupling revolves as one unit, misalignment being taken up between the lubricated teeth.



Oil Field Sales Representatives:

LOS ANGELES
Thomas Machinery Co.
HOUSTON
M. N. Dannenbaum

Get this authoritative book which clearly shows how flexible materials can be avoided in coupling design.

Sign and mail this Coupon for the Free Book.

THE BARTLETT HAYWARD CO.
216 SCOTT STREET - - - BALTIMORE, MARYLAND

Read Prof. Moore's authoritative discussion of the failure of flexible materials.

Company _____ *Individual* _____

Address _____ *City* _____ *State* _____

ANOTHER MANUFACTURER OF OIL FIELD MACHINERY THAT USES SKF BEARINGS

Clark Machine Company

Equipped with the highest priced bearing in the world
YOU MAY BUY A BEARING AS A BARGAIN BUT TRY AND GET A BARGAIN OUT OF USING IT
for
Nothing is apt to cost so much as a bearing that cost so little.
SKF
Puts the Right Bearing in the Right Place

Drilling 4000 Feet, Wichita Spudder Shares Credit for Depth Record Success with SKF

DRILLING one of the deepest wells that has ever been drilled with a Spudder on the T & P Coal & Oil Company's lease near Ranger, Texas . . . that's what this Clark Machine Company's Model 61 Wichita Falls Spudder is now doing. And when it comes to keeping oil field machinery on the job with the lowest operating expense the choice is ...SKF Bearings. Here's why Mr. W. J. Edwards, Manager of the Clark Machine Company thinks so:

"The success of this machine has been somewhat due to the use of 10 SKF Self-Aligning Ball and Roller Bearings. The Clark Machine Company has been very successful to build the machine to drill to a depth of four thousand feet. However, we experienced considerable trouble with wood, babbitt and bronze bearings . . . it was impossible to keep these bearings free from dust and sand.

"SKF Bearings eliminate all friction and allow tools and bailers to be pulled with much greater speed and less power. They save time in adjusting and oiling because . . . when these bearings are once set they require no adjusting, little attention for oiling and the heavy pillow blocks are dust proof."

SKF INDUSTRIES, INC., 40 East 34th Street, New York, N. Y.

2387

SKF

Ball and Roller Bearings

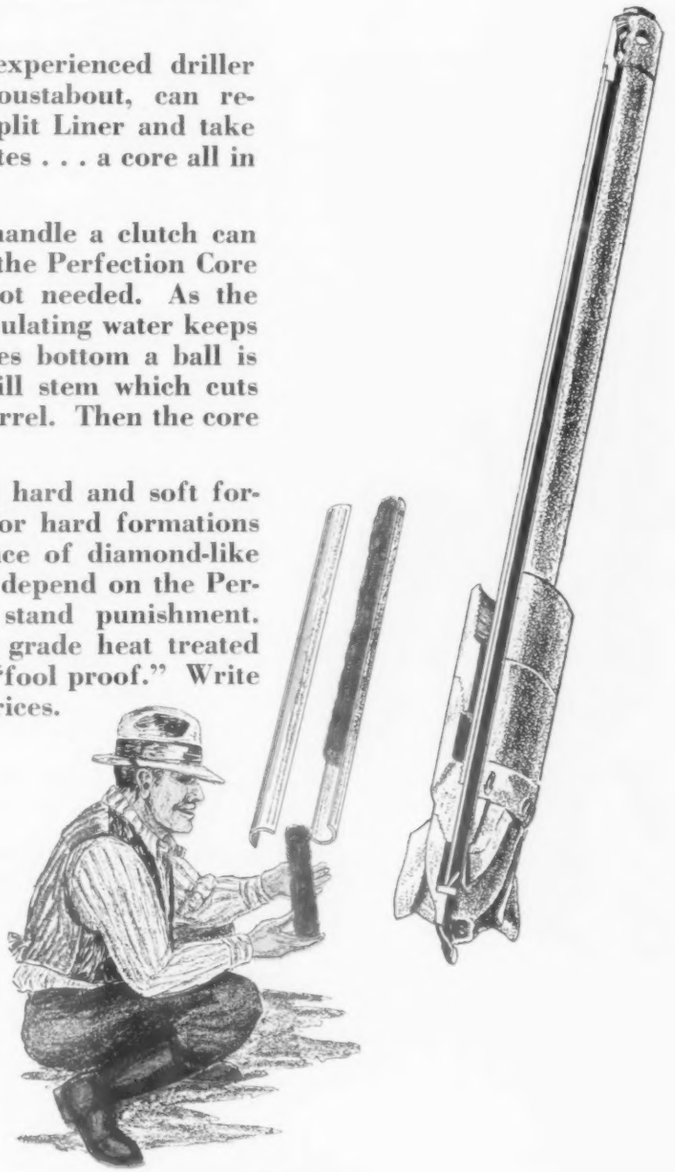
PERFECTION CORE BARREL

2 *minutes by your watch—*

Any man, experienced driller or green roustabout, can remove the Split Liner and take the core out in two minutes . . . a core all in one piece.

Any driller who can handle a clutch can take a perfect core with the Perfection Core Barrel. Experience is not needed. As the barrel goes down the circulating water keeps it clean. When it reaches bottom a ball is dropped through the drill stem which cuts off the water from the barrel. Then the core is taken.

Cutter heads for both hard and soft formations. Cutter heads for hard formations are faced with a substance of diamond-like hardness. And you can depend on the Perfection Core Barrel to stand punishment. Simple design and high grade heat treated steel make it just about "fool proof." Write today for catalog and prices.



More than fifty per cent of the major oil companies of America are using the Perfection Core Barrel.

The Brewster COMPANY~INC.
SUCCESSORS TO OIL CITY IRON WORKS INC.
Shreveport, Louisiana

Complete stocks at these Branch Warehouses: Oklahoma City, Red Ball, Inc., 2-4 E. California St., Phone W-3680; Houston, 2000 Harrington St., Phone Capitol 3021. *Distributors:* Continental Supply Co., all stores; Wilson Supply Co., Houston, Beaumont and Luling, Texas; Murray-Brooks Hdwe. Co., Lake Charles, La.; T. T. Word Supply Co., Houston, Texas and Lake Charles, La.; The Ellis Iron Works, Inc., El Dorado, *Exclusive Export Agents:* W. K. M. Co., 74 Trinity Place, New York, N. Y.

Ask about other Brewster A. P. I. Products: Shouldered Tool Joints; Chrome Nickel Drill Collars; Six Blade Rock Bits; Fish Tail and Special Gumbo Bits; Core Barrel Cutter Heads for both hard and soft formations—the Cutter Heads for hard formations are faced with a substance of diamond-like hardness.

An Invitation from the Oil Industry's Big Bank... to the Oil Industry's Representatives

The International Petroleum Exposition is the Oil Man's Show. The Exchange National Bank is the Oil Man's Bank. Both welcome leaders and representatives of the oil industry, from every State and Nation, to the 1929 home-coming in Tulsa, "The Oil Capital of The World."

The Exchange National Bank found its very inception in oil. For more than twenty years officers and directors have devoted careful attention to financial problems of its every branch. To-day The Exchange National Bank of Tulsa is an integral part of the industry—truly "The Oil Bank of America."

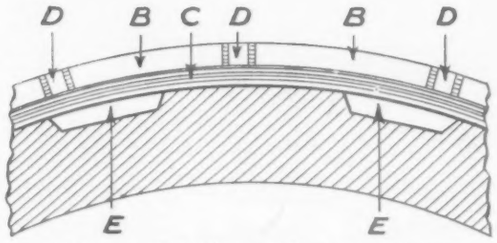
Capital, Surplus and Undivided Profits Exceed $5,000,000; Resources Exceed $75,000,000.

EXCHANGE BANKS OF TULSA

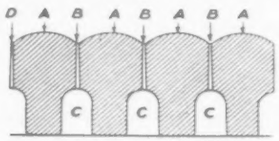
The Exchange National Bank — The Exchange Trust Company

Visitors in Tulsa
Always Find A Hearty Welcome
Awaiting Them Here.

MORE OIL PRODUCTION *with the* GETTY SCREEN

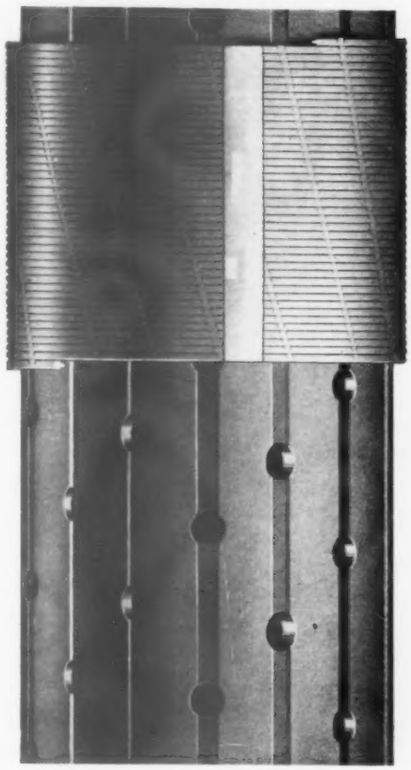


Enlarged End View of Portion of Screen



Enlarged View of Wires in Cross Section

On account of the rounded top of the wire, the points A-A-A-A receive the abrasion as the strainer passes down the rocky sides of a crooked hole, and the edges of the entry slits B-B are protected. The broad, square-faced lugs, "D", hold the wires immovably in place. The entry slit "B" is slightly larger at the discharge side where the fluid enters the passage way "C", thus permitting the fluid to pass more freely between the wires to the vertical grooves E-E running lengthwise in the surface of the screen.



STRONG

The wire wrapping on this screen is held securely in place each coil being itself held in a vise-like grip by the adjacent coils. During the coiling process, the wire is under severe tension and strong lateral pressure which causes the wire to grip the pipe with great firmness. Then the wire is held immovably in place by broad, square-faced lugs.

The GETTY SCREEN has been used successfully as a drill stem to drill down into place where it is set and the well finished, which stands as ready proof of the sturdy construction of this screen.

FAST SCREENING is due to a construction which provides for the greatest possible degree of freedom for the travel of fluids from the point of entry to that of discharge at the interior of the pipe. All the exterior surface is a screen. The entry slits between the wire are protected by the rounded surface of the wire receiving all the abrasion from the rocky sides of holes. This feature insures a clean and free opening where the fluid can enter.

Write for Complete Information on this Superior Screen

FRED I. GETTY

Cable Address: FIGOIL

JENNINGS, LA.

Telephone 129

All Over The Show!

As you circulate among the exhibits at the Sixth International Petroleum Exposition and Congress, make it a point to observe how much of the equipment on display bears the label "Timken Bearing Equipped".

You will see it all over the show. Manufacturers and users of oil field equipment know that Timken is beyond doubt the only bearing rugged enough to withstand the grief and punishment of this unusually severe service.

Oil men know what Timkens do, and they naturally want the superior service, the savings and the extended machine life that go with "Timken-Equipped".

Timkens predominate in all the types of oil field machinery—for Timken is *the one bearing that does all things well* . . . whether the loads are all *radial,* all *thrust or a combination of both.*

And the exclusive combination of Timken tapered construction, Timken *POSITIVELY ALIGNED ROLLS* and Timken steel makes Timken benefits your benefactors for many extra years of service.

THE TIMKEN ROLLER BEARING COMPANY
C A N T O N , O H I O

TIMKEN *Tapered Roller* **BEARINGS**

BOOTHS 72-73 TEXAS BLDG.
Sixth International Petroleum Exposition and Congress
Tulsa, Oklahoma, Oct. 5th-12th

TO THE AMERICAN PETROLEUM INSTITUTE

As manufacturers of drilling and production equipment, who have been very materially aided by following the recommendations of the Standardization Committee of the American Petroleum Institute, we wish to take this opportunity to thank the Institute and the members of the various Standardization Committees, for the splendid work which has been accomplished in bringing about a vast reduction in operating costs, which is not only of great benefit to operators but to manufacturers as well.

WE HEARTILY ENDORSE THE
STANDARDIZATION PROGRAM OF
THE AMERICAN PETROLEUM INSTITUTE

BEAUMONT IRON WORKS COMPANY

Manufacturers of

DREADNAUGHT EQUIPMENT

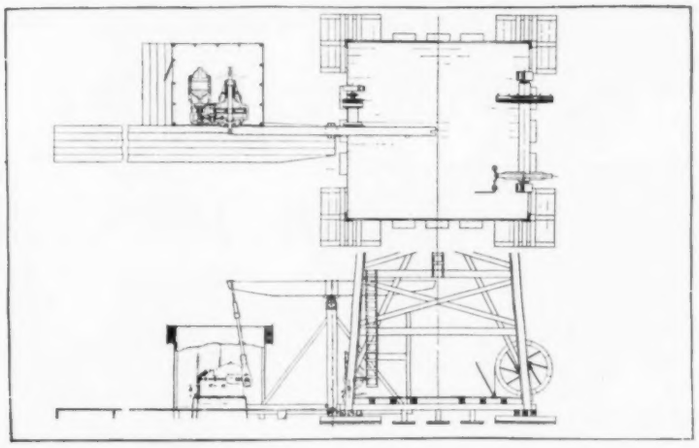
BEAUMONT, TEXAS, U. S. A.

REASONS

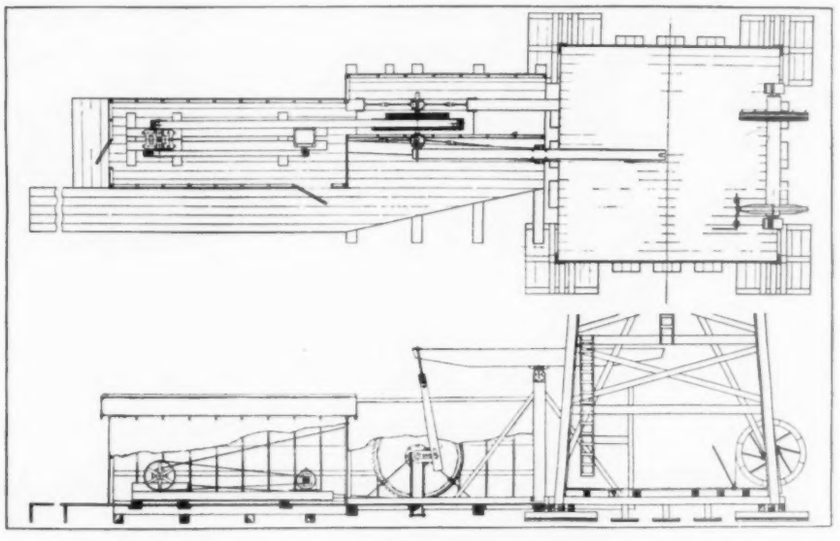
Why Westinghouse-Nuttall Gears Improve Electrical Pumping

No. 2

A Compact Drive



These illustrations show the relative amount for housing space required for typical belted countershaft and bandwheel drive (Bottom), and a Westinghouse-Nuttall double-reduction gear drive (Top.)



WESTINGHOUSE-NUTTALL double-reduction gear units are set directly under the walking beam. The motor is coupled directly to the high-speed shaft of the unit, thus eliminating the bandwheel, belting and countershaft. An extended shaft permits the use of a sprocket for driving the hoist.

This compact form of drive requires only one-tenth as much housing space as the countershaft and bandwheel arrangement, and effects considerable savings in time materials and labor for setting up.

Detailed information on Westinghouse-Nuttall oil well reduction gears may be obtained from any branch of the Oil Well Supply Company, located in all oil fields, or from any Westinghouse sales office.

WESTINGHOUSE ELEC. & MFG. COMPANY
NUTTALL WORKS PITTSBURGH, PA.
SALES OFFICES AND SERVICE SHOPS IN ALL PRINCIPAL CITIES OF THE UNITED STATES
CANADIAN AGENTS: LYMAN TUBE & SUPPLY CO.

Westinghouse

T 30806

Products for the Oil Industry include:

Arc-welders
Automatic Electric Babbitt Pots
Capacitors
Change House Heaters
Circuit-breakers
Floodlighting Equipment
Gears
Heat Exchangers
Insulating Materials
Mazda Lamps
Motors and Control
Panelboards
Protected-type Equipment
Rig Lighters
Safety Switches
Speed Reducers
Transformers
Vapor-proof Ltg. Fixtures

Multiply the life of your WIRE LINES

insuline NO. 269 will save them

ACTUAL TESTS of wire lines used in companion off-set wells in the sulphur oil district, PROVE ABSOLUTELY the economy of using INSULINE NO. 269.

One line, untreated, was barely able to complete one well—while another line of the very same make, used in the off-set well and kept thoroughly lubricated with INSULINE NO. 269, was in good condition and WILL DRILL ANOTHER WELL.

Insuline No. 269

is both a Lubricant, and a Corrosion-Resisting Paint

At a pressure of 2½ lbs., it quickly penetrates to every strand of a wire line, saturating it to the core—and can be applied with the "D.-H. Wire-Line Lubricator" when running cable in or out of well.

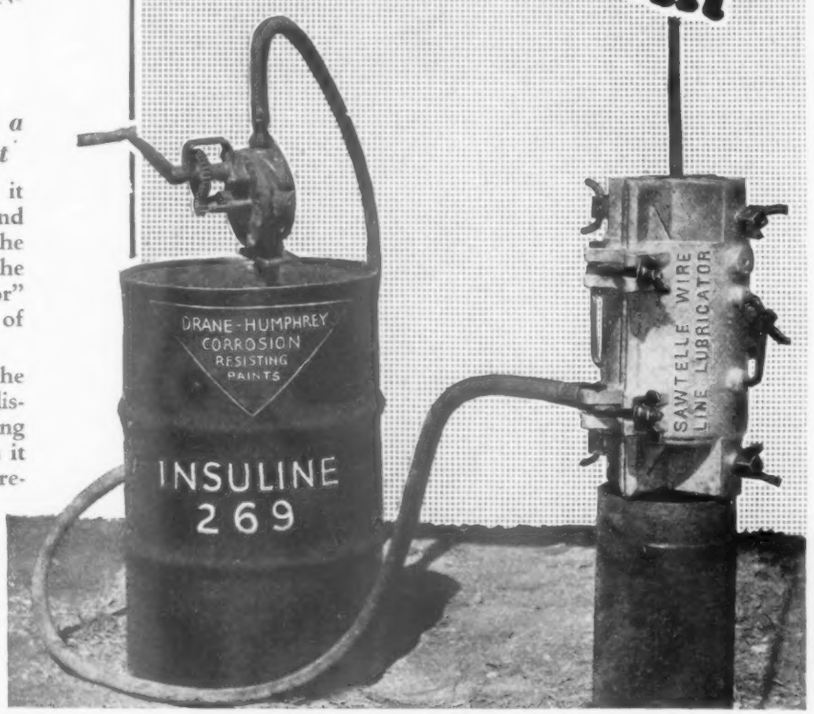
A film quickly forms over the entire wire-line that cannot be dissolved or washed off—preventing corrosion, lubricating the line as it passes curves in casing, and preventing internal friction.

Price Complete

—with equipment for applying (as illustrated) and 55 Gallons of Insuline No. 269.

$250.00

F. O. B. San Angelo or Ft. Worth



CORROSION RESISTING PAINTS
PORTABLE STEEL BUILDINGS
TREATED OIL FIELD TANKS

see our exhibit at the Tulsa Show

Booth 11. Scientific and Technical Bldg.

DRANE-HUMPHREY COMPANY Inc

SAN ANGELO, TEXAS TELEPHONE 5472

Petroleum Building, Fort Worth, Texas

SKILLED SUPERVISION GUARANTEES THE QUALITY OF GULF PRODUCTS

COASTAL AND PARAFFINE CRUDES
GASOLINE — LUBRICATING OILS
NAPHTHA — GAS — OILS
WAX — PETROLEUM COKE
CYLINDER—ENGINE—CORDAGE

GULF REFINING COMPANY

General Sales Offices

PITTSBURGH, PA.

District Sales Office

New York Boston Philadelphia Louisville Atlanta Houston New Orleans

Ocean Terminals

Boston (Beverly), Mass.
Providence, R. I.
New York Harbor (Bayonne, N. J.)
Jacksonville, Fla.
Port Tampa, Fla.
Mobile (Magazine Point, Ala.)
Philadelphia (Girard Point, Pa.)
Charleston, S. C.
Savannah, aG.
New Orleans (Gretna, La.)
Port Arthur, Texas
Galveston, Texas

UNIVERSAL ACCLAIM

"Costs less to run than any pump I ever used."

"Costs less to run than any pump I ever used."

"EPCO PUMP gets all the oil."

"Costs less to run than any pump I ever used."

"Has cut our labor bill in half."

"Has cut our labor bill in half."

"Has cut Pulled Tubing down"

"Haven't had to pull Tubing"

"Runs easier than any pump I ever used."

"Runs easier than any pump I ever used."

"Fuel bills low."

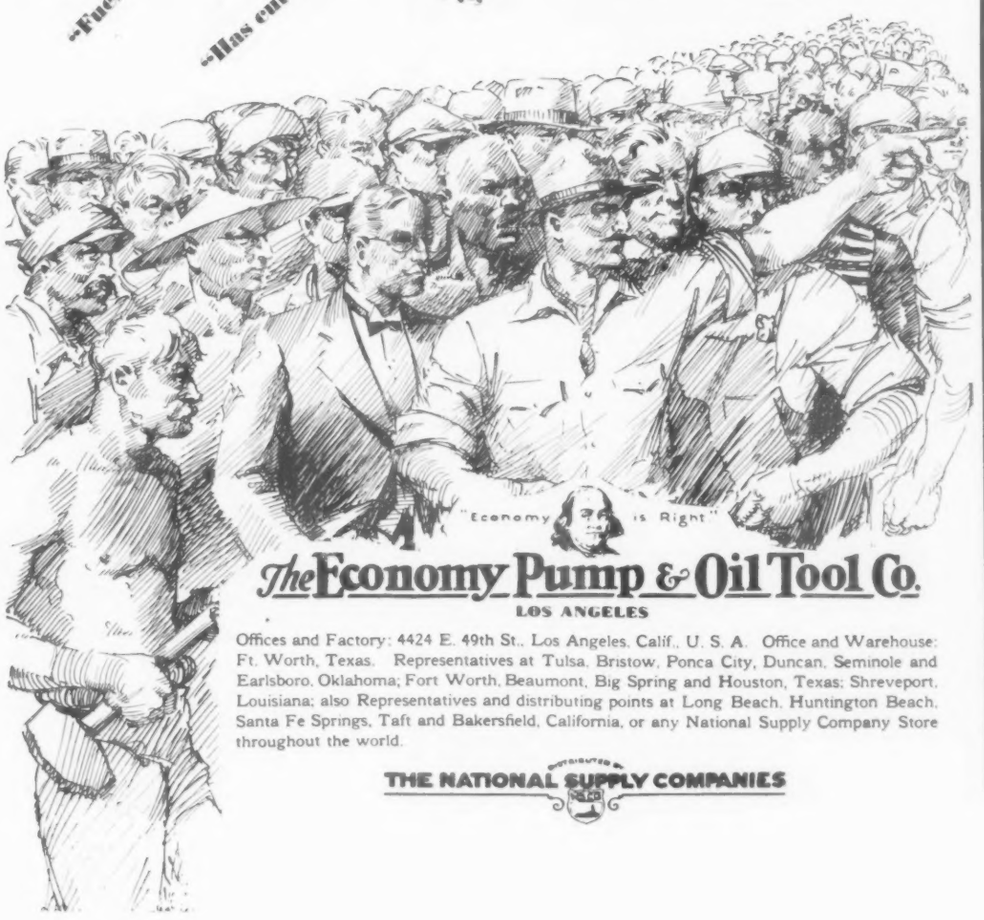
"Fuel bills low."

"Has cut down our rod jobs tremendously."

"Has cut down our rod jobs tremendously."

"EPCO PUMP gets all the oil."

"Has cut our labor bill in half."

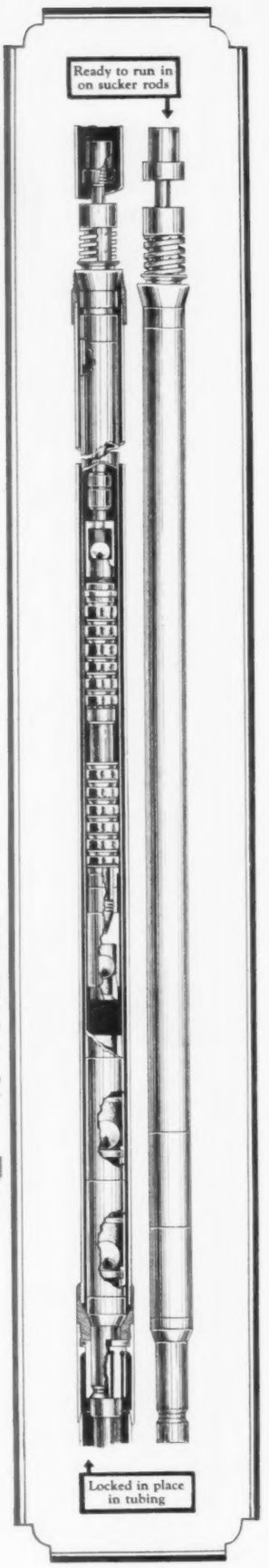


The Economy Pump & Oil Tool Co.

LOS ANGELES

Offices and Factory: 4424 E. 49th St., Los Angeles, Calif., U. S. A. Office and Warehouse: Ft. Worth, Texas. Representatives at Tulsa, Bristow, Ponca City, Duncan, Seminole and Earlsboro, Oklahoma; Fort Worth, Beaumont, Big Spring and Houston, Texas; Shreveport, Louisiana; also Representatives and distributing points at Long Beach, Huntington Beach, Santa Fe Springs, Taft and Bakersfield, California, or any National Supply Company Store throughout the world.

THE NATIONAL SUPPLY COMPANIES



HAYSTELLITE

The cast tungsten carbide

FIELD TESTS

TELL THE STORY . . .

TRY IT!

HAYNES STELLITE COMPANY

Unit of Union Carbide UCC *and Carbon Corporation*

DISTRICT SALES OFFICES

Chicago—Carbide and Carbon Bldg.
Detroit—4-240 Gen'l Motors Bldg.
Los Angeles—1310 Santee Street
San Francisco—114 Sansome St.
Cleveland—628 Keith Bldg.
Houston—6119 Harrisburg Blvd.
New York—30 East 42nd Street
Tulsa—Exchange National Bank Bldg.

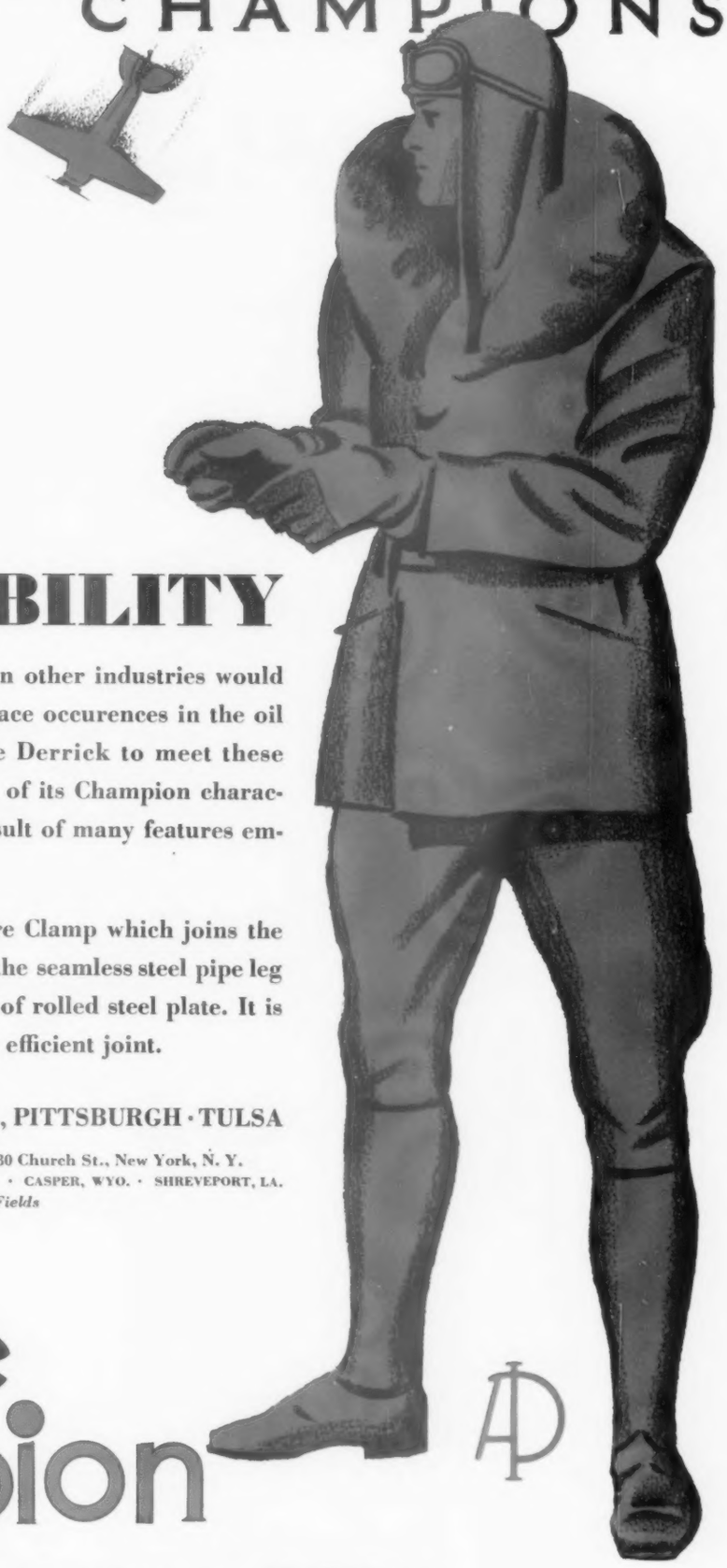
General Offices—Kokomo, Indiana

HAYNES STELLITE
HAYSTELLITE
HASCROME
HASTELLOY

HAYSTELLITE

Quality Products
Fair Prices
Engineering Service
Dependable Supply

AMONG CHAMPIONS



DEPENDABILITY

Oil men know that demands, which in other industries would be called emergencies, are commonplace occurences in the oil country. You can rely on the Moore Derrick to meet these widely varying demands. That is one of its Champion characteristics. Such dependability is the result of many features embodied in the Moore Champion.

One of these features is the new Moore Clamp which joins the structural steel girts and braces with the seamless steel pipe leg sections. This clamp has a solid body of rolled steel plate. It is convenient to use and makes a highly efficient joint.

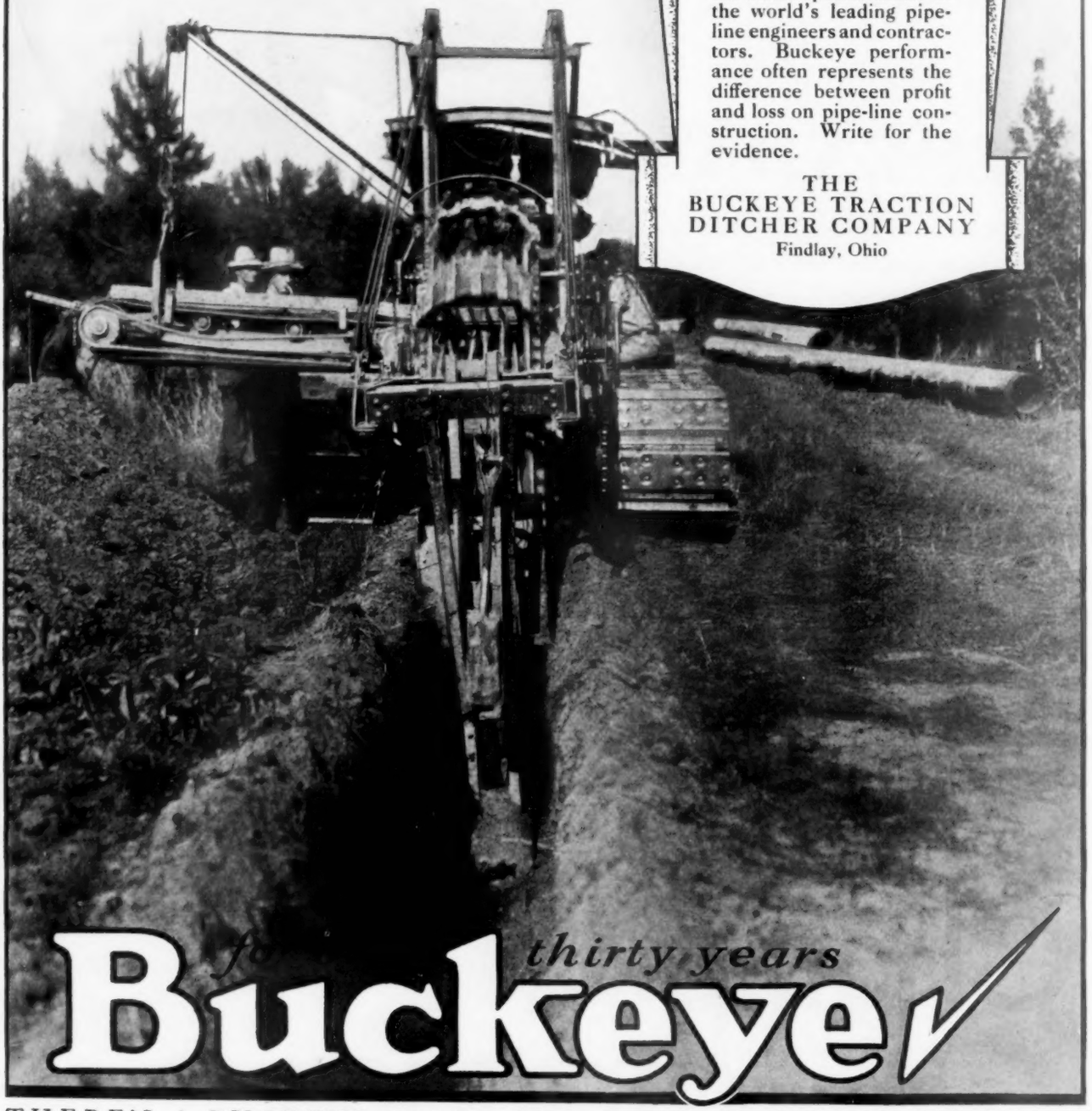
LEE C. MOORE AND COMPANY, INC., PITTSBURGH · TULSA
ESTABLISHED 1907
New York Offices: Oilfield Equipment Company—30 Church St., New York, N. Y.
DALLAS, TEXAS · HOUSTON, TEXAS · WICHITA, KANSAS · CASPER, WYO. · SHREVEPORT, LA.
Stocks in All Principal Fields

THE Moore Champion DERRICK

Setting *the* Pace

CUTTING perfect pipe-line trenches at the rate of a mile a day is not unusual—*for Buckeyes.* Their thirty-year-old habit of setting the pace is the direct result of being designed and built to the exact specifications of the world's leading pipe-line engineers and contractors. Buckeye performance often represents the difference between profit and loss on pipe-line construction. Write for the evidence.

THE
BUCKEYE TRACTION
DITCHER COMPANY
Findlay, Ohio



for thirty years
Buckeye

THERE'S A BUCKEYE SALES AND SERVICE OFFICE NEAR YOU

RESISTCOR *Enamel*

RESISTS CORROSION

WE have introduced to you a great improvement in pipe line protection. We will demonstrate RESISTCOR Products without charge, to anyone interested in the protection of pipe lines.

PIPE LINE EQUIPMENT

Distributors of the latest type

McCormick-Deering Tractors

Samson Oilfield Winches

Seminole Winches and Booms

SEE OUR EXHIBIT AT THE INTERNATIONAL PETROLEUM EXPOSITION

W-K-M Equipment

Trackson Full Crawler Tracks

Booms and Winches for Caterpillar Tractors

RESISTCOR

ENGINEERING CORPORATION

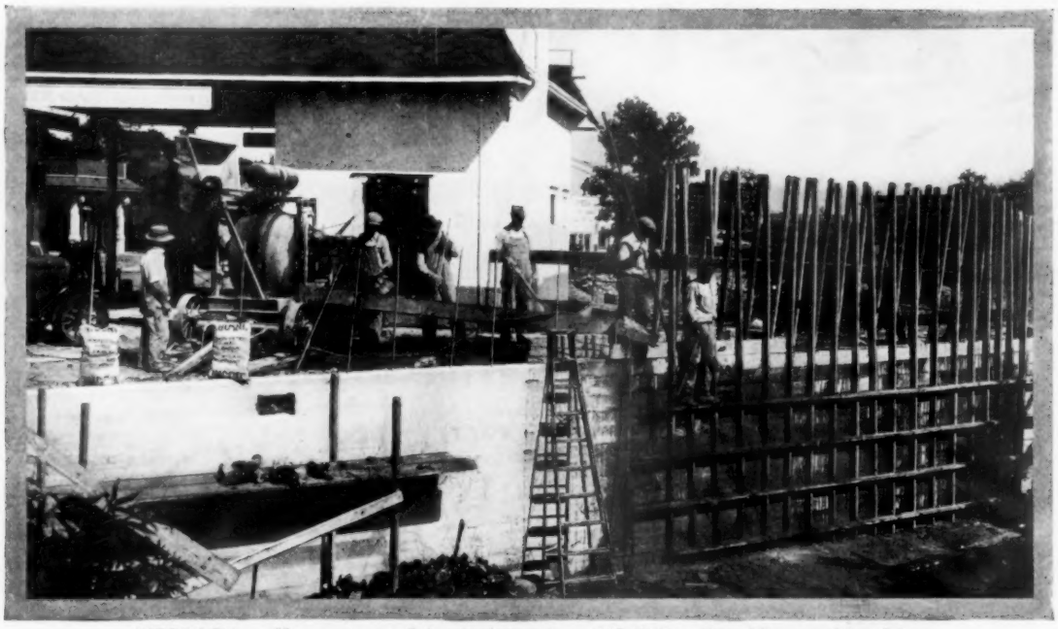
TULSA

MEMPHIS HOUSTON

PAT S. LEWIS
Mgr. Equipment Div.
K. H. BURTON
Sales Manager
ROY M. TAYLOR
Superintendent Service

E. R. McCARTHY
President

R. D. HARDCASTLE
Mgr. Southern Div.
J. B. HEYMES
Chemical Engineer
E. R. PITCHER
Secretary



"INCOR" wall, constructed for Independent Oil & Gas Co., Kansas City, Mo.

"INCOR" Serves the Oil Industry

IN every phase of the oil industry, from oil well to filling station, "INCOR" Brand Perfected High-Early-Strength Portland Cement is saving time and money. In the oil fields, for drilling operations, crevice work, making derrick corners, etc., "INCOR" has proved its exceptional worth and demonstrated time and again its economies.

And in the bulk storage department of the oil industry—for example, in the varied construction jobs of filling stations where the requirements of merchandising give the time-factor great importance—"INCOR" may well be regarded as indispensable.

The above photograph, showing a retaining wall and paving, constructed for the Independent Oil and Gas Company of Kansas City, Mo., illustrates a typical example of this work.

Engineers have found that the speed, economy, and easy handling which make "INCOR" Brand Perfected High-Early-Strength Portland Cement an ideal cement for cementing casings, make "INCOR" unequalled for filling crevasses and other difficult oil well work. "INCOR" has been used successfully to fill large crevasses after all other methods have failed.

"INCOR" Brand contains no admixtures; requires no special methods of handling, and produces concrete of exceptional workability that attains service strength in 24 hours.

We invite your most exacting investigation.

INTERNATIONAL CEMENT CORPORATION

A PERFECTED HIGH-EARLY-STRENGTH "INCOR" PORTLAND CEMENT

342 Madison Avenue, New York

INTERNATIONAL SYSTEM LONE STAR CEMENT

SUBSIDIARIES

LONE STAR CEMENT COMPANY ALABAMA
Birmingham, Alabama

LONE STAR CEMENT CO. INDIANA, Inc.
Indianapolis, Indiana

THE CUBAN PORTLAND CEMENT CORP.
Havana, Cuba

LONE STAR CEMENT CO. PENNSYLVANIA
Philadelphia, Pennsylvania

THE LONE STAR CEMENT CO. (KANSAS)
Kansas City

LONE STAR CEMENT CO. VIRGINIA, Inc.
Norfolk, Virginia

LONE STAR CEMENT CO. NEW YORK, Inc.
Albany, New York

LONE STAR CEMENT CO. LOUISIANA
New Orleans, Louisiana

ARGENTINE PORTLAND CEMENT CO.
Buenos Aires, Argentina

LONE STAR CEMENT COMPANY TEXAS
Dallas and Houston, Texas

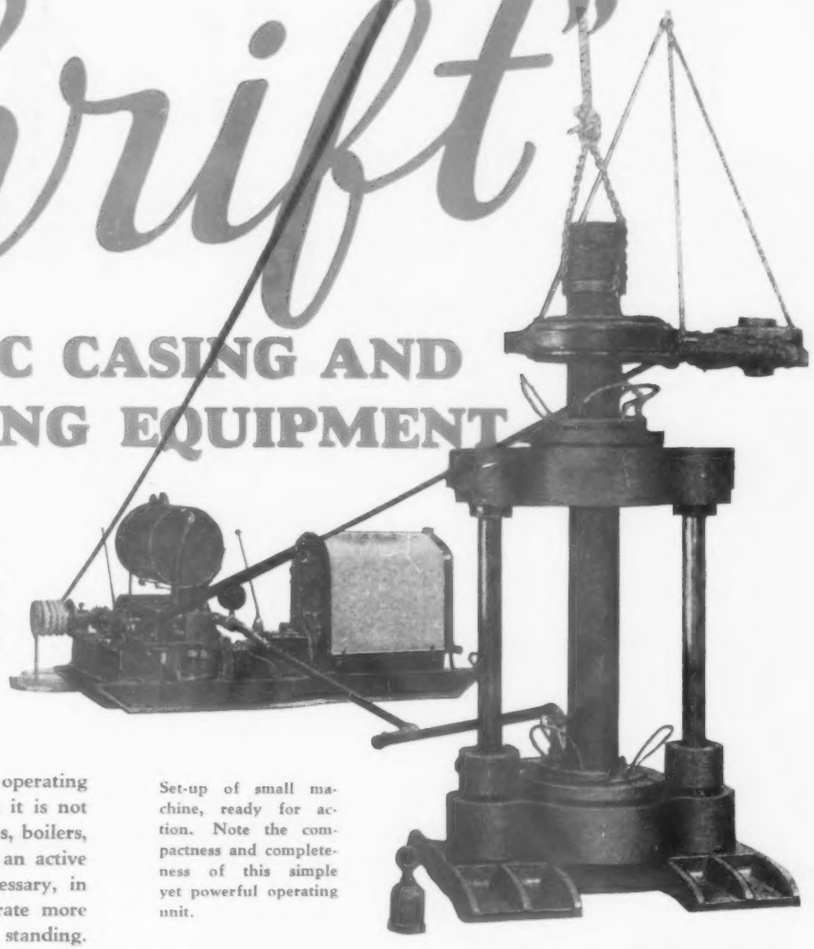
URUGUAY PORTLAND CEMENT COMPANY
Montevideo, Uruguay

One of the world's largest cement producers—13 mills . . . total annual capacity 21,000,000 bbls.

"Thrift"

HYDRAULIC CASING AND PIPE PULLING EQUIPMENT

In this day of keen competition, alert oil men are quick to see the enormous economies from pulling all casing and pipe from old wells . . . one of the greatest steps toward lowering the cost per barrel of oil produced.



Set-up of small machine, ready for action. Note the compactness and completeness of this simple yet powerful operating unit.

Complete Operating Unit

"THRIFT" machines are complete operating units in themselves. To operate them it is not necessary to have fuel lines, water lines, boilers, and other equipment usually seen on an active oil lease. Not even a derrick is necessary, in fact a "THRIFT" machine will operate more handily, even, if there is no derrick standing.

Makes Money for the Oil Man

CASING AND PIPE FOR NEW WELLS AT RECLAIMED PRICES

1. The transportation costs of bringing casing and pipe long distances is obviated as the pipe is usually recovered where needed.
2. Thousands of wells throughout the country have in them valuable casing and pipe which was not pulled originally because the derrick and machinery were inadequate. Now comes the Thrift Equipment which can be quickly set up and without the aid of derrick, other machinery, engine, boiler, fuel and water line, cable or other equipment usually necessary for oil field operations . . . starts to work pulling casing and pipe.
3. One machine will recover around 1,500 feet of casing and pipe a day. A conservative basis of 50 cents a foot would mean a revenue of $750 a day.
4. Vast sums of money could be saved by companies operating in foreign fields, for often handling charges run greatly in excess of the first cost of casing and pipe.
5. An idea of the possibilities of recoverage of casing and pipe may be realized when it is considered that since 1859 about 900,000 wells have been drilled in the United States alone.

Unscrewing Device for Pipe or Casing

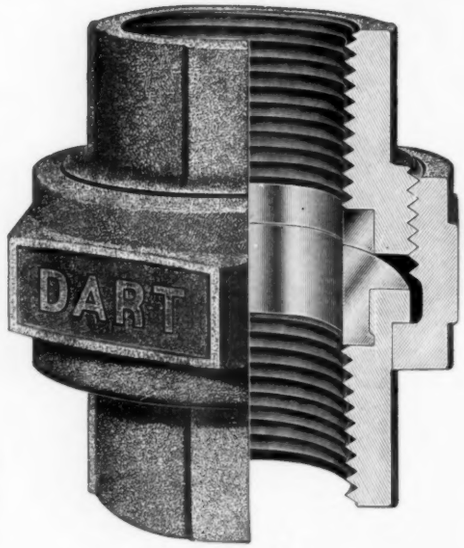
By this specially designed device, pipe and casing is unscrewed as fast as it is elevated above the top ring, this device being also operated, as with the other operations, by the operator by means of a clutch. The device entierly eliminates the use of chain tongs and sledge hammers.

The THRIFT CORPORATION

HOUSTON, TEXAS

Write for Information on

Hydraulic Pulling and Lifting Equipment



Sizes ⅛" to 4" inclusive.

DART UNIONS

The Choice of the Careful Operator

Careful operators all over the country have used Dart Unions for years and know the faithful service they give. Their long service record makes them attractive for the man who buys on the basis of cost per year instead of cost per union.

Get Uninterrupted Service With Dart

Exacting workmanship with the best materials are your assurance that Dart Unions will be everything you expect.

HEAVY PATTERN

STRAIGHTWAY FOR FULL FLOW

PROPERLY GROUND AND GUARANTEED

LEAK PROOF

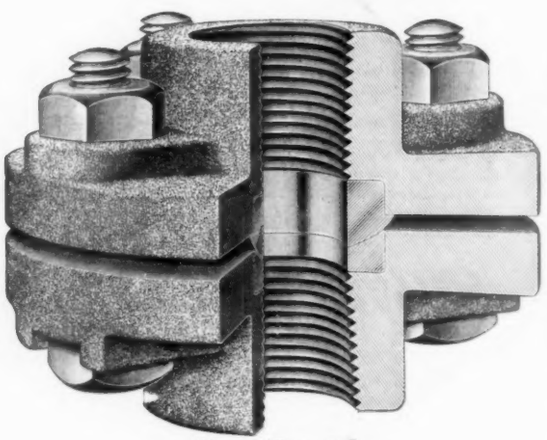
TROUBLE PROOF

CORROSION PROOF

TWO BRONZE SEATS

Is the reason Darts give service.

From Dart you can get a full line of Union fittings, Unions male and female. Elbow Unions male or female, Tee Unions with the Union on the run or on the outlet. A sample of any style is yours for the asking. Try them your way.



Sizes ½" to 12" inclusive.

E. M. DART MFG. CO.
Providence, R. I.

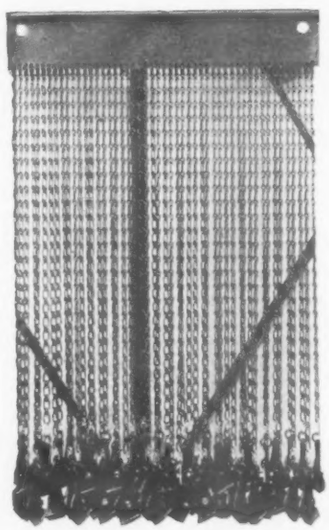
The Fairbanks Company
DISTRIBUTORS

Send for your copy of our Catalog.

One trip up
One trip down

instead of

Two trips up
Two trips down



W-K-M Stationary Type Sucker Rod Hanger, designed for permanent installation in the derrick. Chains and clamps are suspended from a heavy "T"-Beam. Substantial, durable, long-lasting.

HERE'S the way it figures out:

On the usual rod pulling job you pull a stand into the derrick and disconnect. That's one trip up. Then you lower the stand and lay it down on the rod walk. That's one trip down. Going back in the hole, you slap on the elevator and raise the stand into the derrick again. That's *another* trip up. Then, after the stand is connected, you lower it into the hole. That's *another* trip down.

Using a W-K-M Sucker Rod Hanger, either stationary or portable type, you cut your rod handling in half and save a lot of time. Here's the way you work it:

You pull a stand into the derrick. While it is being disconnected, the derrick man slips a W-K-M Rod Hanger Clamp over the rod below the elevator. When the elevator starts down it is quickly released and the clamp takes the weight of the stand, which swings over to the Hanger. Simple as A-B-C. That's the *one and only* trip up. Going back into the hole, the elevator is raised to the derrick man, who slaps it on the stand, releases his Rod Hanger Clamp with a flip of the hand, and the stand starts into the hole. That's the *one and only* trip down.

Either way, the elevator makes two trips up, two down. But, when a W-K-M Sucker Rod Hanger is used, two of those trips are made empty, *and made fast*. Not less than 10% of the time usually required to pull a string of rods, is saved.

This saving can be jumped up to 30%, if a W-K-M Elevator Release is used in connection with a W-K-M Sucker Rod Hanger. This device keeps the elevators traveling constantly, without stops. The accompanying coupon, a letter, wire or 'phone call will bring full details promptly, together with a list of other advantages to be gained by use of W-K-M Sucker Rod Hangers. Field demonstrations cheerfully made by our field men. Just tell us where, and the depth of your well. No obligation.

W-K-M Portable Type Sucker Rod Hanger raised from its steel tub, and ready to go into the derrick. One of these Hangers equips each roustabout gang, and takes the place of twelve to fifteen rod walks.

The W-K-M CO., Inc.

OIL FIELD-PIPE LINE & INDUSTRIAL EQUIPMENT

HOUSTON - TEXAS

Export Department:
74 TRINITY PLACE, NEW YORK, N. Y.

W-K-M Co., Inc.,
Houston, Texas.
( ) Gentlemen: would like to have a demonstration of your W-K-M (Fritts Type) Sucker Rod Hangers. ( ) Portable. ( ) Stationary. ( ) Kindly send illustrated pamphlet describing Rod Hangers in full for our information.

Name .....

City .....

Street .....

State .....

West Texas Acid Water—Here's Pipe That Defies It!

Acid water is the bane of operators in West Texas. Its corrosive effect on ordinary pipe is disastrous—but not on Reading 5-Point Pipe. That is why operators in these tough fields have turned to Reading 5-Point Pipe in order to secure uninterrupted production.

Reading 5-Point Casing, Tubing and Line Pipe are made of corrosion-defying Genuine Puddled Wrought Iron—the same wrought iron that has given such remarkable service wherever it has been used. Reading 5-Point Pipe is the only wrought iron pipe that is double-welded. It stands supreme for oil-field uses.

READING IRON COMPANY, Reading, Pennsylvania

Atlanta · Baltimore · Cleveland · New York · Philadelphia · Boston
Cincinnati · St. Louis · Chicago · New Orleans · Buffalo
Houston · Tulsa · Seattle · San Francisco · Detroit
Pittsburgh · Ft. Worth · Los Angeles · Kansas City

As an added improvement all Reading Galvanized Couplings for Reading 5-Point Tubing are now furnished with galvanized threads.

Reading pipe distributed by: Frick-Reid Supply Corp., Bradford Supply Co., Republic Supply Co., Superior Tube Co., Reading Iron Co. of Texas.

GENUINE PUDDLED WROUGHT IRON
READING PIPE
DIAMETERS RANGING FROM ⅛ TO 20 INCHES

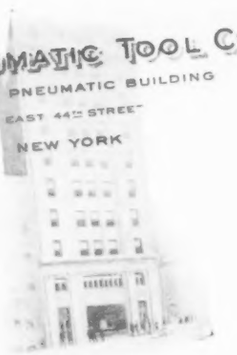
Announcement!

CHICAGO PNEUMATIC TOOL COMPANY

CHICAGO PNEUMATIC BUILDING

EAST 44TH STREET

NEW YORK



TO THE MEN

OF THE OIL INDUSTRY

When I was in Tulsa last year with Charles M. Schwab who officiated at the opening of the International Petroleum Exposition, he expressed a keen personal interest in the new piece of oil field equipment we have been perfecting. He felt, as Chairman of the Board of this company, we should withhold any announcement until we had tested and perfected every detail.

This new product is now ready and has been developed after years of research and experiment. Every facility, all the skill and resources of this company are back of this product. It will interest every oil producer because it will do better work and save both time and money. Production is well under way and marketing and servicing plans have been perfected.

Details of this new CP product are presented on the following pages. I am quite sure they will be of interest to you.

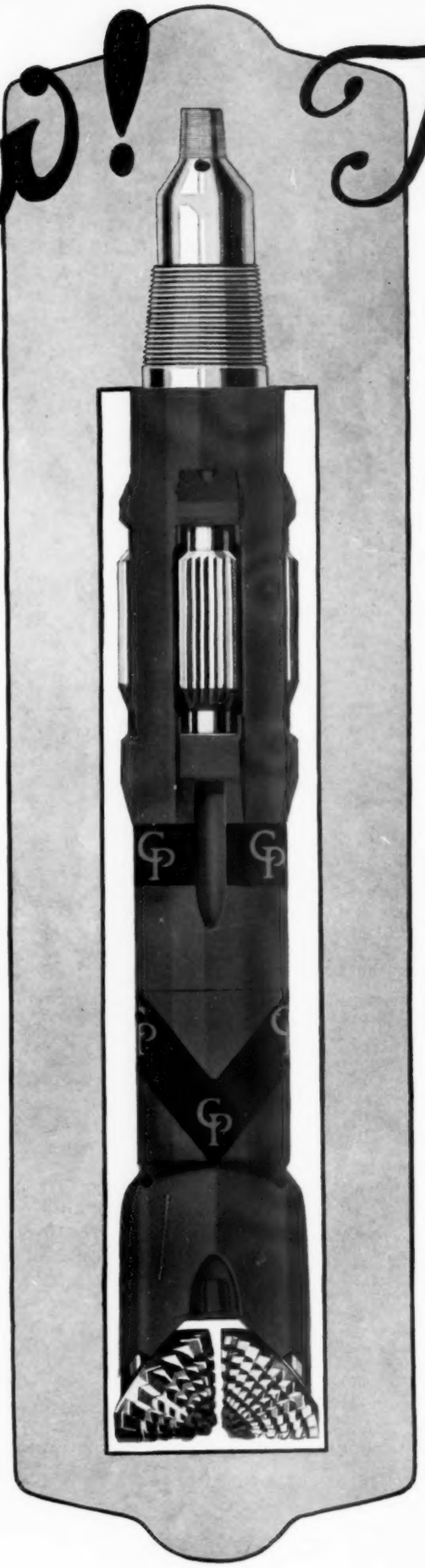
Very truly yours,

President

CHICAGO PNEUMATIC TOOL COMPANY

HAJ-T

New! The CP



Remarkable Savings Assured Never Before Available to Rock Bit Users!

When a CP cutting cone wears down, it can be removed with its bearing and a new cutting cone and bearing inserted in 20 minutes! The worn cone with its bearing can then be sent to a local, licensed CP Service Station where the worn cone will be stripped from its bearing and a *new factory-made* cone will be re-fitted on the same bearing. The complete assembly will be sent back to you, ready for service, and the cost will be much less than for a complete new assembly! We guarantee that such replacement can be made on the original bearing *at least once*. For your *protection, convenience and economy*, this re-fitting can be done only at authorized CP Service Stations which will be established in every locality. For the same reasons, CP cones and bearings are never sold separately. Thus, you are always assured of a new, factory-made, guaranteed cone which can be identified by its *"red head"!* The use of CP "Tucone" Rock Bits will unquestionably result in lower drilling costs. We are ready and willing to prove this in any way you say. An inquiry will receive immediate attention.

REAMER BODY

This is a one-piece manganese steel casting, assuring strength, rigidity and durability. It is so designed as to permit the placing of the 3 separate reamer cutters at the proper distance for best alignment and efficient reaming. The reamer cutters, made from chrome nickel steel, heat-treated and hardened, rotate on a bearing held in the reamer body by a bearing pin. Thus, any wear caused by the reaming action falls on the reamer cutters and bearings which are easily and quickly replaced. *There is no wear on the reamer body itself, therefore no loss of gauge.*

BIT BODY

This is a one-piece manganese steel casting. The cutting cones are *separated* to a scientifically determined degree. Their position in the bit body allows the fluid stream to impinge directly on the bottom of the hole thereby more effectively carrying away the cuttings. Due to this lack of obstruction of the fluid stream, there is *no side-wall hydraulicking*, no pressure exerted upon the sides of the hole to cause side-hole washouts and lead the bit from its true vertical course. *Crooked holes, due to side-wall hydraulicking, are eliminated!* The 2 cutting cones are so inserted in the bit body that they alone stand the brunt of the drilling action. Though they become worn, the bit body itself is unaffected. *A complete change of these cones can be made in only 20 minutes!*

CONES AND BEARINGS

The CP Cone Assembly consists of a cutting cone with deep-cut teeth designed from practical experience to meet various conditions, mounted on an extra large bearing and the entire assembly is held securely in the bit body by a washer, nut, lock nut and cotter pin which are easily removable. The cone is made of the finest quality chrome nickel steel, drop-forged, properly heat-treated and hardened for strength and durability. The cone bearings, on which the cutting cones are fitted and revolve, are drop-forged chrome nickel steel, properly heat-treated and hardened. They are considerably larger than necessary to insure a wide margin of safety when overloading the bit. Positive lubrication of cones is assured by a new lubricator of CP design.

CLEARANCE

Here is shown the position of the cutting cones as presented to the bottom of the hole. Note that the space directly in front of the wash pipe is free and clear so the fluid stream will strike the bottom of the hole *vertically and with full force*, eliminating the possibility of side-wall hydraulicking. Also note white space within circle indicating clearance around cones and bit head.

"TUCONE"

Rock Bit

"Keeps Gauge--*Always*"

FOR the past five years, this new type "Tucone" Rock Bit has been thoroughly tested under actual operating conditions in the various oil fields of the country. Over a great number of runs, old experienced drillers have found that the CP bit *costs less to maintain, drills as fast or faster, requires less time in getting in and out of hole, eliminates reaming and produces straighter hole* than any bits now on the market. Side-wall hydraulicking has been entirely eliminated by the proper direction of the fluid stream aided by a considerably greater clearance. Other features of the CP bit include correct positioning of the reamers with respect to cutters; greater strength, rigidity and wearing qualities of cones and reamers and bit and reamer bodies; accessibility and ease of changing the few wearing parts; low maintenance. In a bit where castings, cutting elements, etc., are directly in the path of the vertical fluid stream, thus forming a permanent barrier, the terrific hydraulic force of the stream is deflected and directed to the *side* of the hole causing large, overgauge, irregular cavities. These cavities allow the drill stem ample space to bend from its vertical axis, thus misdirecting the true vertical course of the bit, the result of which is crooked hole. *The CP bit allows the full hydraulic force of the fluid stream to impinge in a true vertical course upon the bottom or face of the hole.*

Note the clearance (indicated by the white areas) or *open hole* between the gauge of the cutting cones and the largest diameter of the reamer body, which is formed by the reamer cutter. This feature insures a free circulation of the up-going fluid stream, cuts down the clogging of loosened formation, minimizes danger of "balling up," reduces friction and *aids in the digging of a straight hole!* (Note end view illustration of cutting cones on opposite page).

CHICAGO PNEUMATIC TOOL COMPANY

Sales and Service Branches all over the World

General Offices: 6 East 44th St., New York

OIL TOOL DIVISION OFFICES

Oklahoma City, Okla.

Los Angeles, Calif., 655 Santa Fe Ave.

9

Points of SUPERIORITY

1- SAFETY —Extra large drop-forged spindle bearings. No cone bushings. One-piece bit head. One-piece reamer body.

FISHING ELIMINATED

2- CIRCULATION—Fluid stream jets directly on bottom of hole. *No side-wall hydraulicking.*

STRAIGHT HOLE

3- CLEARANCE —Over 34% of hole area is clear. "Balling up" eliminated.

STRAIGHT HOLE

4- CONES and SPINDLE BEARINGS —Cones run on extra large replaceable drop-forged spindle bearings. Stronger and thicker cone wall section due to absence of bushing.

GREATER STRENGTH

5- REAMERS —Three units, properly spaced and located for accurate reaming. New type reamer bearing eliminates wear on body.

KEEPS GAUGE—ALWAYS!

6- ONE-PIECE BODIES —Both bit and reamer bodies are solid manganese steel.

GREATER STRENGTH

7- REPLACEMENTS —*Cones* — Cone-and-bearing units easily and quickly changed. *Reamers*— Easily and quickly changed.

TIME SAVED

8- LOW MAINTENANCE —Body repairs eliminated. No wear on bit head or reamer body.

MONEY SAVED

9- CONE SERVICE —New CP "Red Head" cutting cones can be re-fitted on your used bearings (only at authorized CP service stations) and guaranteed by CP to be as good as if a new bearing were used—at a great saving to you!

ECONOMY

CHICAGO PNEUMATIC

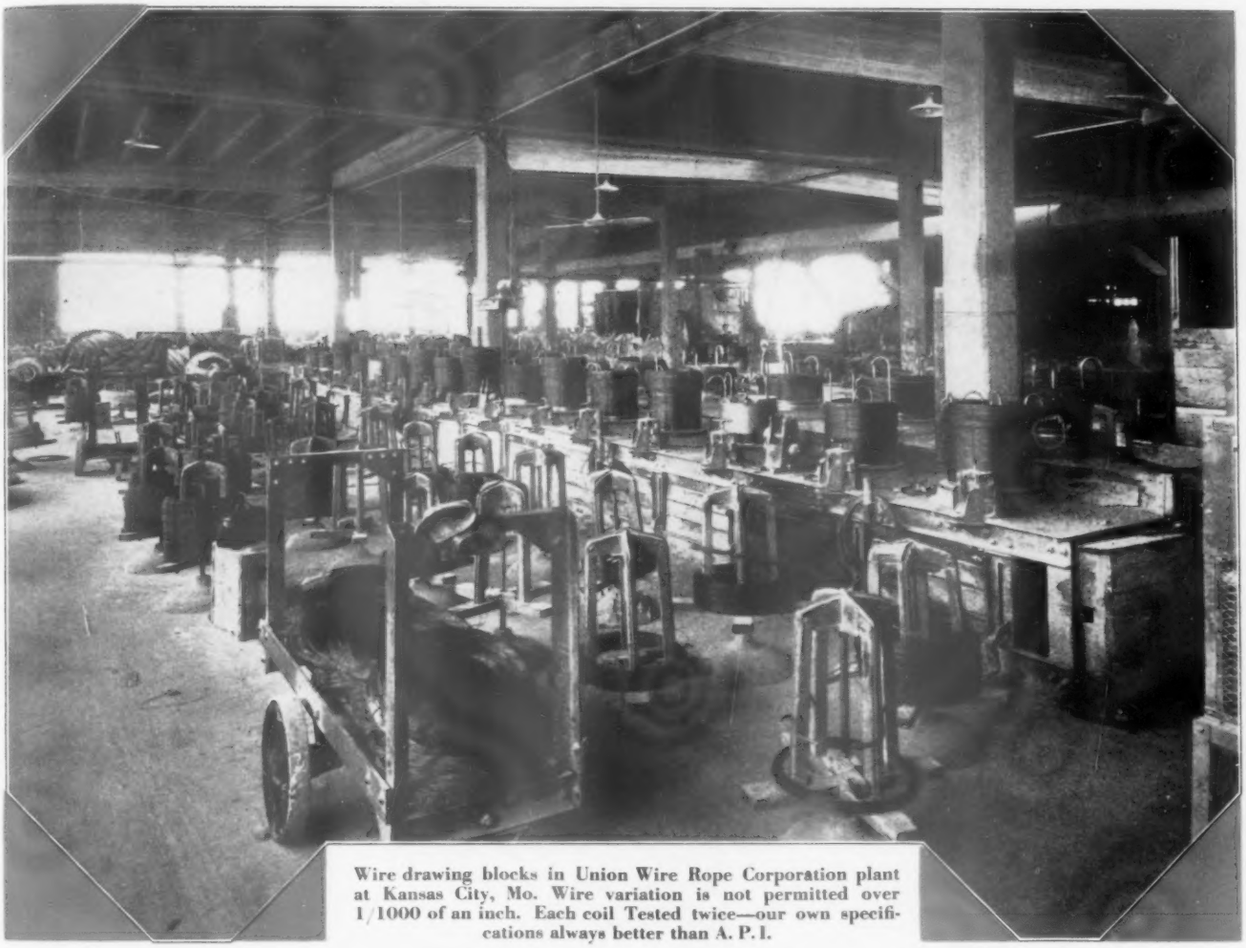
At your

SERVICE

Authorized CP Service Stations are being established in every locality throughout the oil fields. They will be duly licensed and supplied with all the necessary stock and equipment to do the CP cone re-fitting job. *There will be one near you* where *your* cone re-fitting requirements will be taken care of promptly and efficiently. The two CP Factory Branches located at Oklahoma City and Los Angeles will carry complete CP Rock Bit stocks at all times. Leading supply houses will carry CP Rock Bits and parts. Field representatives, some of whom are pictured here, have been selected for their thorough familiarity with oil field practice and requirements. Their mission is to be of *service* to you at every opportunity.

Service Station—Oklahoma City, Oklahoma

Service Station—Los Angeles, California



Wire drawing blocks in Union Wire Rope Corporation plant at Kansas City, Mo. Wire variation is not permitted over 1/1000 of an inch. Each coil Tested twice—our own specifications always better than A. P. I.

YOU ARE INVITED

to Booths 56-57-58 Texas Bldg., at the Exposition

Drop in on us during the Exposition. We'll be pleased to meet old friends and make new ones. If there is anything we can do to make your stay at the Exposition more profitable or more pleasant, just let us know what it is.

And if you want to investigate wire rope, we'll gladly tell and show you facts of interest about the wire lines for the Oil Industry that are designed and built by practical oil men.

TRADE MARK

UNION WIRE ROPE CORPORATION
3 North Madison Ave., Tulsa, Okla.
Oil Country Sales Offices 338 Kennedy Bldg., Tulsa
Branch Office and Warehouse Portland, Oregon
Factory 21st and Manchester, Kansas City
JARECKI MANUFACTURING COMPANY
Oil Country Distributors—Stocks at All Stores

UNION WIRE LINES

Ask for Mason Balanced Valves With Liquid Level Controller

When you want Positive and Constant pressure regulation of Oil and Gas

SINCE 1882 we have been supplying an ever-increasing demand for quality pressure regulators—the kind that can be installed with the assurance that they will give years and years of accurate, reliable, and trouble-free service.

Our catalog No. 62 listis the complete line—write for it.

MASON REGULATOR CO.,
1190 Adams St., Dorchester Center Station
BOSTON, MASS.

Mason Regulator Co., Ltd., 686 Notre Dame St. W., Montreal, Canada

Mason Regulators

In Africa, *too*

"*The* HIGHER STANDARD"

Drillers in Africa have the same advantage as drillers in America—they drill and fish with Spang Weldless Jars. With Jars so tough and strong and safe, making hole is swift, sure, economical. The absence of welds means an absence of trouble.

A Spang Wire Line Clamp is also being used by this crew and their dusky helpers.

Spang Weldless Jars are standard equipment in all fields, domestic and foreign. Over 300 leading Supply Stores carry them in stock.

SPANG & COMPANY

BUTLER, PA.

SPANG

the HIGHER STANDARD

▼ WELDLESS JARS ▼

Texans *Like* Miracles

IT was the Chinese who started the piping of natural gas, centuries ago in bamboo reeds. But it looked too miraculous to be true, so they stopped.

Texas and Oklahoma on the other hand, take all the miracles they can get. Hundreds of cities and towns use natural gas for all purposes, from warming a baby's bath to running factories.

Lone Star gas supplies 250 of these towns, for more than a million people. We are bringing in a new 20-inch line from the Panhandle by way of Petrolia, to provide additional gas for the new industries and homes in our territory.

These states lead the world in natural gas industrial development.

AND speaking of miracles, have you seen the Gas Refrigerator? No machinery. No noise. A tiny gas flame plus a trickle of water makes your ice.

LONE STAR GAS COMPANY

Producers and Transporters of Natural Gas

THE massive 76" Regan *for* Super loads

5 years ahead in design

WORLDS *fastest* TRAVELING BLOCK

Regan

Forge & Engineering Co.

Oil Field Equipment

Plant and General Offices

New York Office
75 West Street
Wm. Brust, Manager

Mid-Continent Office
Dallas, Texas
201-2 Marvin Building

Representatives

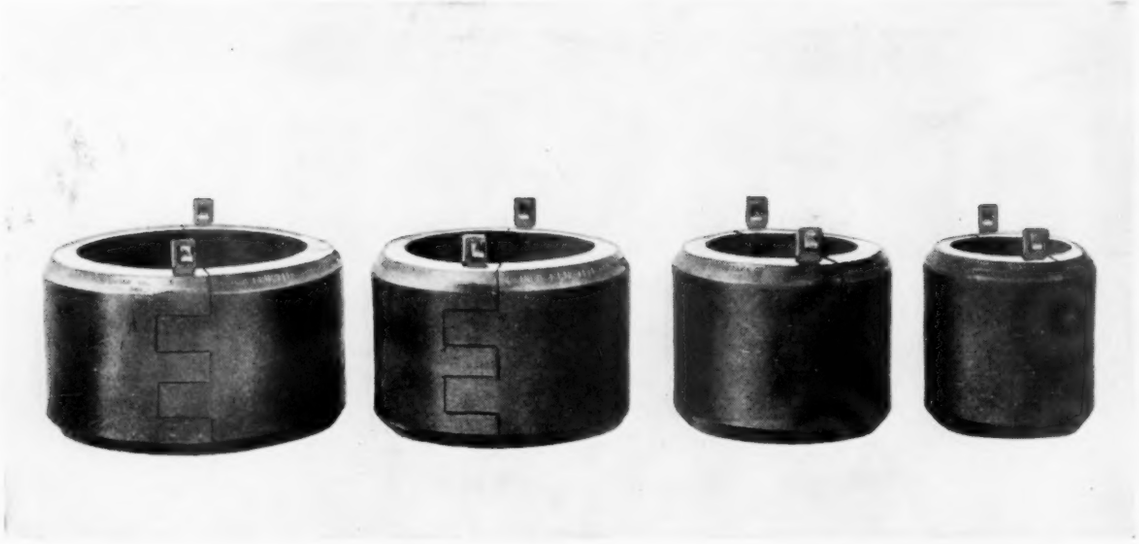
Oklahoma City, Okla.
1420 W. 21st St.

Ponca, Texas
P. O. Box 604

Maracaibo, Venezuela
Wm. Adams, exec Asmr. Consul

SEE THE REGAN EXHIBIT

Actual demonstrations of all Regan equipment will be presented at the Tulsa Exposition. Be sure to see the exhibit.



No other casing guard has these important features

THE Goodrich Grip-Tite Casing Guard has a metal-locking construction, *completely embedded in rubber,* and so unique that (1) the guard can be applied to the pipe in *a few seconds;* (2) it cannot possibly work loose or change its position.

Yet that is but part of the story. It is an equally important feature that the rubber cannot come loose from the metal. Engineers are familiar with the Goodrich Vulcalock Process — by which rubber is "locked" to metal. The union achieved by this process is so strong that in adhesion tests the rubber itself will often tear before it separates from the metal. The development of this Goodrich process is almost a romance; it is a vital feature of the Grip-Tite Casing Guard.

It is also an important feature that the metal is completely *embedded* in the rubber. There can be no metal-to-metal contact.

See how this metal locking construction eliminates delay in putting on and taking off

Goodrich Grip-Tite Casing Guards need no expensive and clumsy special appliances to apply. A hammer is all that's required. Any workman can put them on in ten seconds. And it's just as simple to remove them. Unlock the pin—that's all. They eliminate wasteful destruction—unavoidable when old-type guards are used.

Twenty-five to thirty-three per cent saving in power is not unusual when these guards are used. They eliminate friction between the casing and drill pipe, increasing the speed of deep-well drilling.

If you don't already know all about them—if you're not already using them—let us give you additional information. The B. F. Goodrich Rubber Co., Est. 1870, Akron, Ohio.

Oil Field Branches

Pacific Goodrich Rubber Co.:

1386 East 7th St., Los Angeles, Cal.
650 Second St., San Francisco, Cal.
2625 Walnut Street, Denver, Colo.

The B. F. Goodrich Rubber Co.:

1201 Young Street, Dallas, Texas
2422 Broadway, Kansas City, Mo.
285 S. Peters St., New Orleans, La.
and other principal cities

Goodrich

KERO TEST

REGISTERED U.S. PAT. OFF.

VALVES AND FITTINGS

The synonym for safety, reliability and durability in every important oil producing center throughout the world . . . .

KEROTEST MANUFACTURING CO.
PITTSBURGH, PA.

Carried in Stock and Sold by
NORVELL-WILDER SUPPLY CO.
Houston, Beaumont, Shreveport, Fort Worth
OIL WELL SUPPLY COMPANY
Branch Stores in all Oil Fields

Export Distributors
OIL WELL SUPPLY COMPANY
Pittsburgh, New York, Tampico, London

This is to Certify that this
KEROTEST
Product has been carefully inspected and tested by us, and is in strict accordance with specifications, and our stamp of approval has been affixed.
Pittsburgh Testing Laboratory
Inspector in charge.

A *Standard of Quality* that has never been relaxed

Bethlehem maintains at Los Angeles, Calif., and at Houston, Texas, well-assorted stocks of line pipe, ready for immediate shipment. Both threaded and coupled and plain-end pipe are included in these stocks.

FEW products are manufactured under such favorable conditions as Bethlehem Steel Pipe.

Bethlehem Pipe is made in a splendid, large, scientifically planned mill. It is made by the most approved methods, on machinery of the latest type. Its manufacture is carried out under the direction of men with years of successful experience in pipe manufacture. The inspection system is most critical, insuring that every length of Bethlehem Pipe that is shipped is of the high quality that you naturally expect in any Bethlehem product.

But, perhaps of first importance is the fact that Bethlehem Pipe is manufactured by a Company with more than half a century of experience in the manufacture of steel and steel products, and with a standard of quality that has never been relaxed.

The result is all that might be expected. The uniformity of Bethlehem Pipe, its strong weld and freedom from scale, its exceptional softness and ductility, the ease with which it can be threaded — these qualities are daily winning new users for Bethlehem Pipe.

If you have not yet become acquainted with Bethlehem Steel Pipe through actual use, a trial order is suggested. Discover for yourself how good steel pipe can be!

BETHLEHEM STEEL COMPANY
General Offices: Bethlehem, Pa.
District Offices: New York, Boston, Philadelphia, Baltimore, Washington, Atlanta, Pittsburgh, Buffalo, Cleveland, Detroit, Cincinnati, Chicago, St. Louis, San Francisco, Los Angeles, Seattle, Portland, and Honolulu.
Bethlehem Steel Export Corporation, New York City
Sole Exporter of our Commercial Products

BETHLEHEM *steel* PIPE

FIRST AGAIN!

We now announce the FIRST FULLY HEAT NORMALIZED FROM END TO END SUCKER RODS.

No catch phrases . . . . No trick words

Jones High Manganese Fully Normalized Steel Sucker Rods represent the greatest step in advance in sucker rod manufacture since we introduced our now well known High Manganese Steel Sucker Rods. These new rods, fully heat normalized in the world's largest slot type sucker rod furnace, insure,

Uniform Texture from End to End
Greater Fatigue Resistance

Equip your next deep well with these new and better sucker rods. Write for our new booklet just off the press.

Producers, engineers and production superintendents are cordially invited to visit our plant and inspect our modern equipment.

THE S. M. JONES COMPANY

TOLEDO, OHIO, U. S. A

BRADEN STEEL & WINCH COMPANY

MANUFACTURERS

BRADEN'S BIG BERTHA

ALL STEEL
LONG LIVED

TIMKEN
BEARINGS

Pulls your deepest wells with ease

Safe and Depend-able for

Rods, Tubing and Cleaning Out

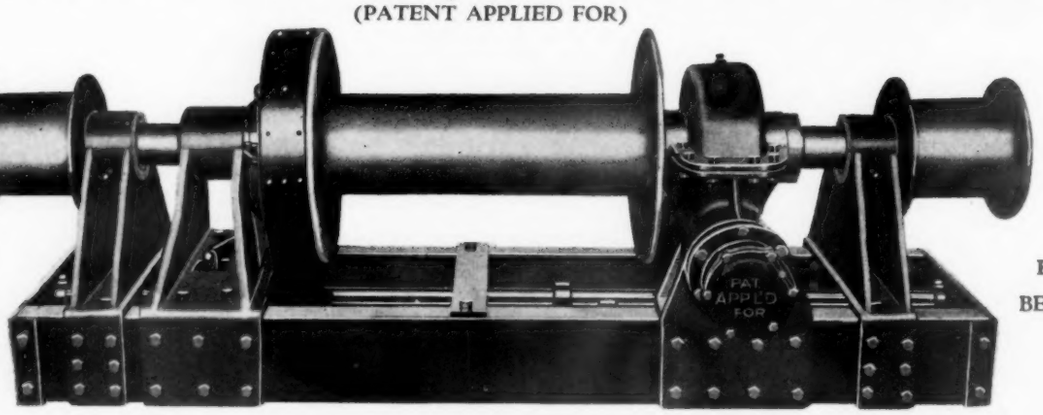
Cable Drum
18″ diameter
34″ width
BRAKES
Two 6″ x 40″ equalized

LINE SPEEDS
60′ to 450′
PER MINUTE
FIRST WRAP
OF THE DRUM

ALL STEEL
BRADEN TRUCK WINCHES
WITH
BRADEN IRREVERSIBLE SAFETY BRAKE

(PATENT APPLIED FOR)

TIMKEN
BEARINGS



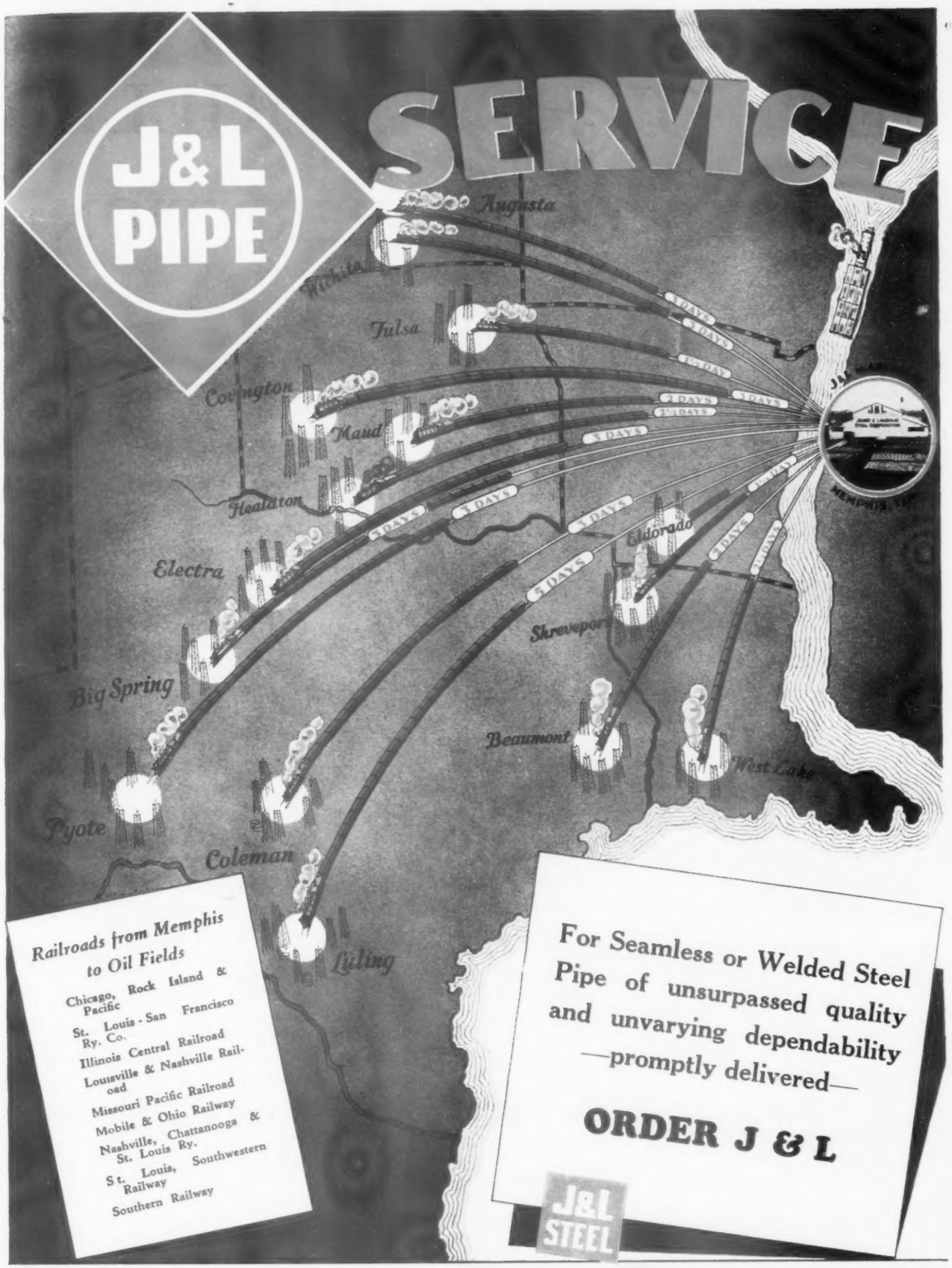
HYATT
BEARINGS

THERE IS A BRADEN WINCH FOR EVERY TRUCK

ASK YOUR TRUCK DEALER OR WRITE US

HOPKINS EQUIPMENT CORP.

1007 East Admiral Blvd. DISTRIBUTORS **Tulsa, Oklahoma**



JONES & LAUGHLIN STEEL CORPORATION

PITTSBURGH PENNSYLVANIA

What Interests the Driller?

FEET OF HOLE DRILLED

and

CONTINUOUS OPERATION

A few reasons why

BALDWIN

1030 S [A.P.I.No.3] and 1240 S [A.P.I.No.4]

PRECISION OIL WELL CHAINS

do have LONGER LIFE and FEWER SHUTDOWNS in actual operation . . .

(1) *Straight Side Bar Construction,* lessens chance of elongation and makes possible more accurate machining.

(2) *Alloy Steels,* heat treated in most modern furnace equipment possible to buy, results in tough core and hard surface.

(3) *Precision Machining,* Baldwin pins and bushings have always been ground to exact size thereby insuring most accurate fits.

(4) *Two Oil Holes in Bushings,* guarantees full lubrication to chain pins.

BALDWIN—Originator of Precision Oil Well Chains.
Originator of Straight Side Bar Construction.

BALDWIN CHAIN & MFG. CO., Worcester, Mass., U. S. A.

ORIGINATORS OF PRECISION OIL WELL CHAINS

Distributors: Geo. J. Fix Company, 2507 Commerce St., Dallas, Texas; J. W. Minder Co., 927-929 Santa Fe Avenue, Los Angeles, Cal.; The Petroleum Equipment Co., 2800 South Alameda St., Los Angeles, Cal.; The Adam-Hill Co., 244 Ninth St., San Francisco, Cal.; Lucey Products Corp. of Tulsa, Healdton and Duncan; International Supply Company, at Okmulgee, Wewoka and Stroud; T. T. Word Supply Company, Houston, Beaumont, Texas; Shreveport and Lake Charles, La.; Grover C. Johnson, Wichita Falls, Pyote and Big Springs, Texas.

Export Department: Lucey Products Corp., 3505 Woolworth Bldg., New York City.

More footage OF dependable core

at a minimum cost per foot of core recovered!

The basis of Elliott supremacy throughout the oil fields of the world.

Write us at once for descriptive catalogs of Elliott Core Drills for both rotary and cable tools.

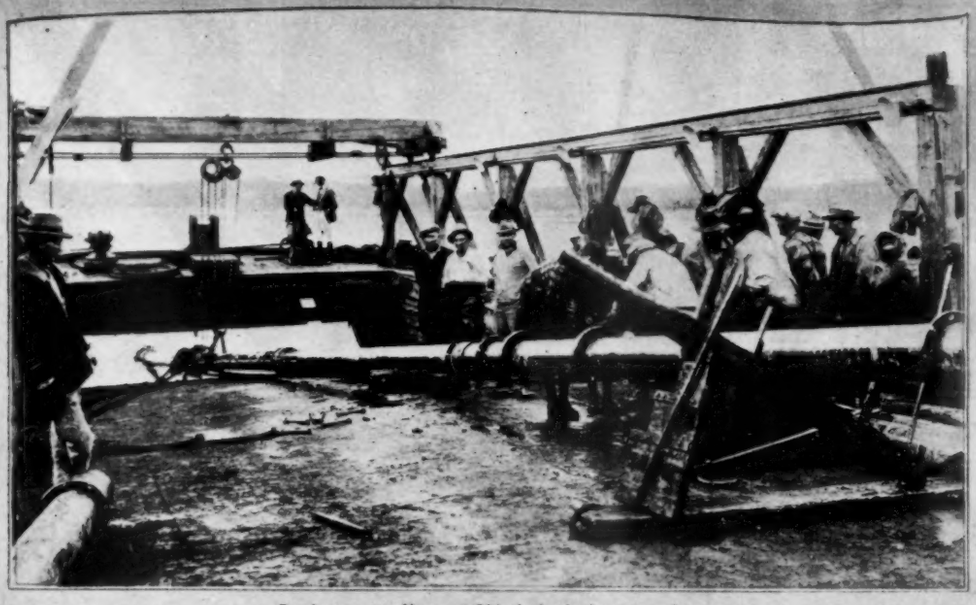
ELLIOTT CORE DRILLING CO.
840 Subway Terminal Building
LOS ANGELES, CALIFORNIA

Export Office: 150 Broadway, New York

Elliott Cable Tool Core Drills
Distributed exclusively in the United States east of the Rocky Mountains, by
HINDERLITER TOOL COMPANY
of Tulsa, Okla.

Elliott Rotary Core Drills
Distributed exclusively in the United States east of the Rocky Mountains, by
REED ROLLER BIT COMPANY

ELLIOTT Core Drills



Laying water lines at Mississippi river crossing

208 Miles of 18-Inch Gas Line in 92 Days Is Record on Memphis Project

By Walter R. Hoot*

ON DE
youn
and
time flowed
phis. This
tion of a p
der way fo
ployed 200
natural gas
people of M
the ideal fu
tries of tha

The Memp
gas under
the Industr
companies
the Monroe
delivers it a
city limits
Light Co.
or its ele
is is also
& L
& Li
& Li
the

e of five

hly pro-
The pipe
mill and
with one
depending
as deter-
made by
vely dry
coat of
and in
as likely
part of
a second
itumastic

nd roller
the coat-
observed
pplication
but the
aving in
d. The
brushes.

STARTING in Louisiana, this 208-mile 18-inch gas line reached Memphis in 92 days. Laying the line involved the crossing of cotton fields, gumbo, swamps, the Mississippi and four other rivers; nine railroads; canals, ditches and bayous—about the full range of experiences that would likely be encountered in laying a pipe line anywhere.

While much credit belongs to the skill of workmen and the wise supervision of the job, still a share may go to an ever-ready and adaptable pipe whose characteristics—more particularly strength, ductility and well-finished ends, meant much in the general success of laying the line.

There is much satisfaction in knowing that when difficult installation problems are encountered which place extra strain on the pipe, such as, crossing rivers and deep ravines, that the pipe can be counted upon to meet these special conditions in a thoroughly satisfactory manner. The extensive use of NATIONAL for lines involving unusual engineering problems is substantial evidence of the reliability of this pipe for special and difficult conditions—one of the reasons why NATIONAL is

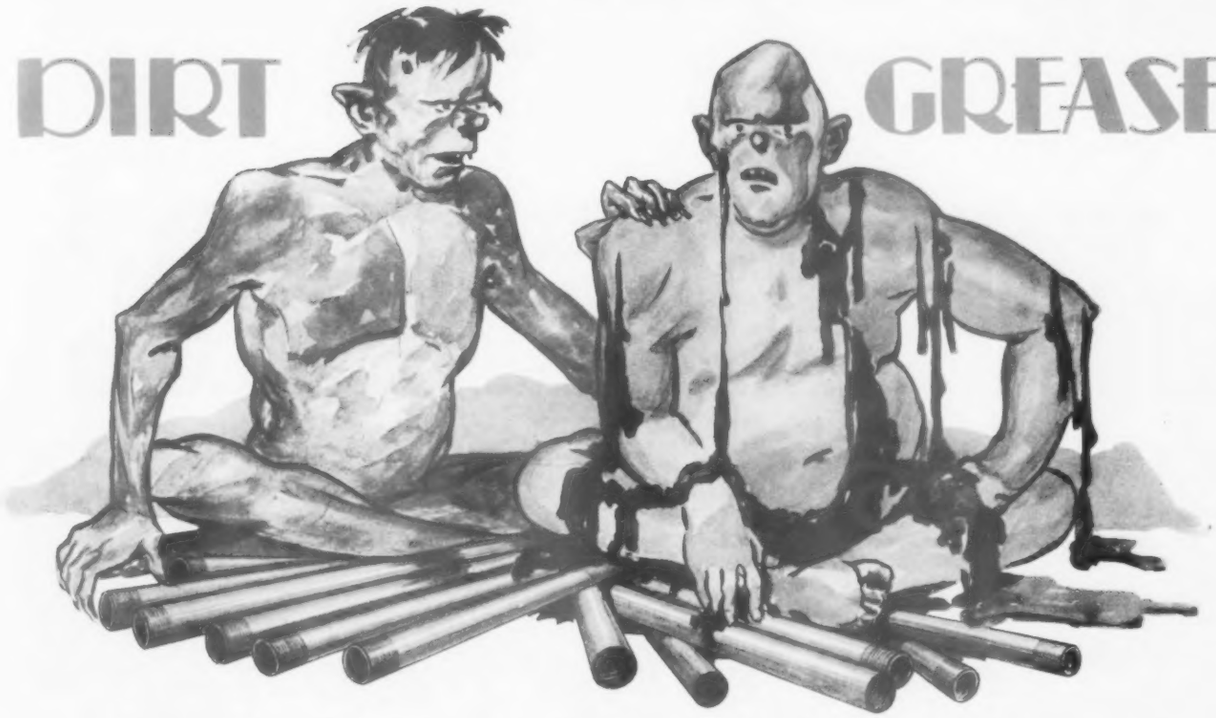
AMERICA'S STANDARD PIPE FOR OIL AND GAS LINES

NATIONAL TUBE COMPANY · Pittsburgh, Pa.

Subsidiary of United States Steel Corporation

NATIONAL PIPE

DIRT GREASE



It's So Easy to Beat Out These Twin Enemies of Pipe-Thread

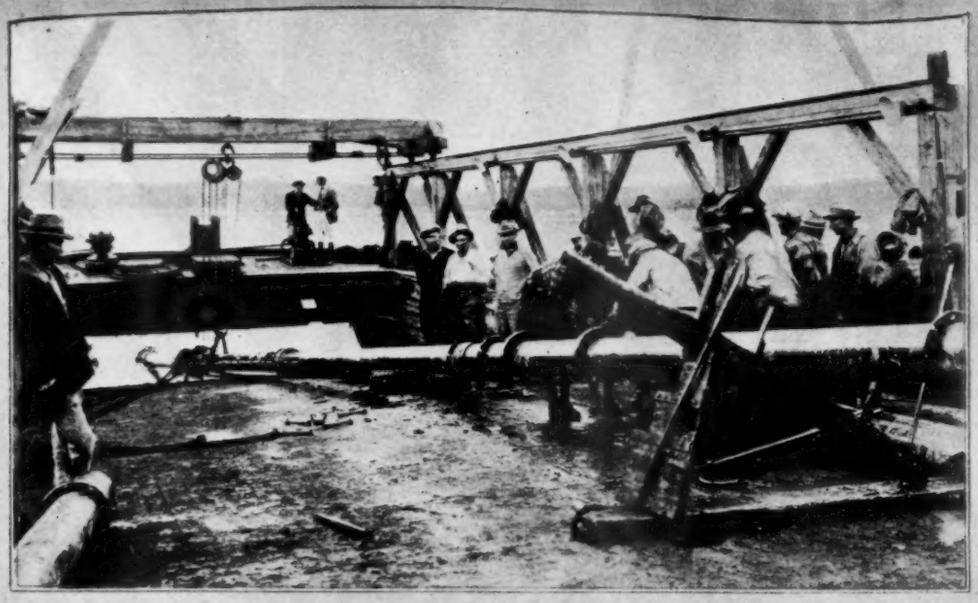
DIRT, hardknocks, careless handling and accidents all wage a relentless war on good pipe from the shipping platform of the mill to the dusty oil fields where the pipe is used. Unprotected couplings become clogged with sand and dirt—pipe threads become battered and damaged.

Make sure you don't have to put up with these costly, troublesome, nuisances by specifying Colona Protected Pipe fitted with Colona Thread Protectors.

By means of the specially designed Colona Cap and Nipple both the *ends* of the pipe as well as *threads* are given complete protection against the most severe handling hazards.

Colona Division
PITTSBURGH SCREW AND BOLT CORP.
PITTSBURGH, PENNA.

COLONA PIPE THREAD PROTECTORS



Laying water lines at Mississippi river crossing

208 Miles of 18-Inch Gas Line in 92 Days Is Record on Memphis Project

STARTING in Louisiana, this 208-mile 18-inch gas line reached Memphis in 92 days. Laying the line involved the crossing of cotton fields, gumbo, swamps, the Mississippi and four other rivers; nine railroads; canals, ditches and bayous—about the full range of experiences that would likely be encountered in laying a pipe line anywhere.

While much credit belongs to the skill of workmen and the wise supervision of the job, still a share may go to an ever-ready and adaptable pipe whose characteristics—more particularly strength, ductility and well-finished ends, meant much in the general success of laying the line.

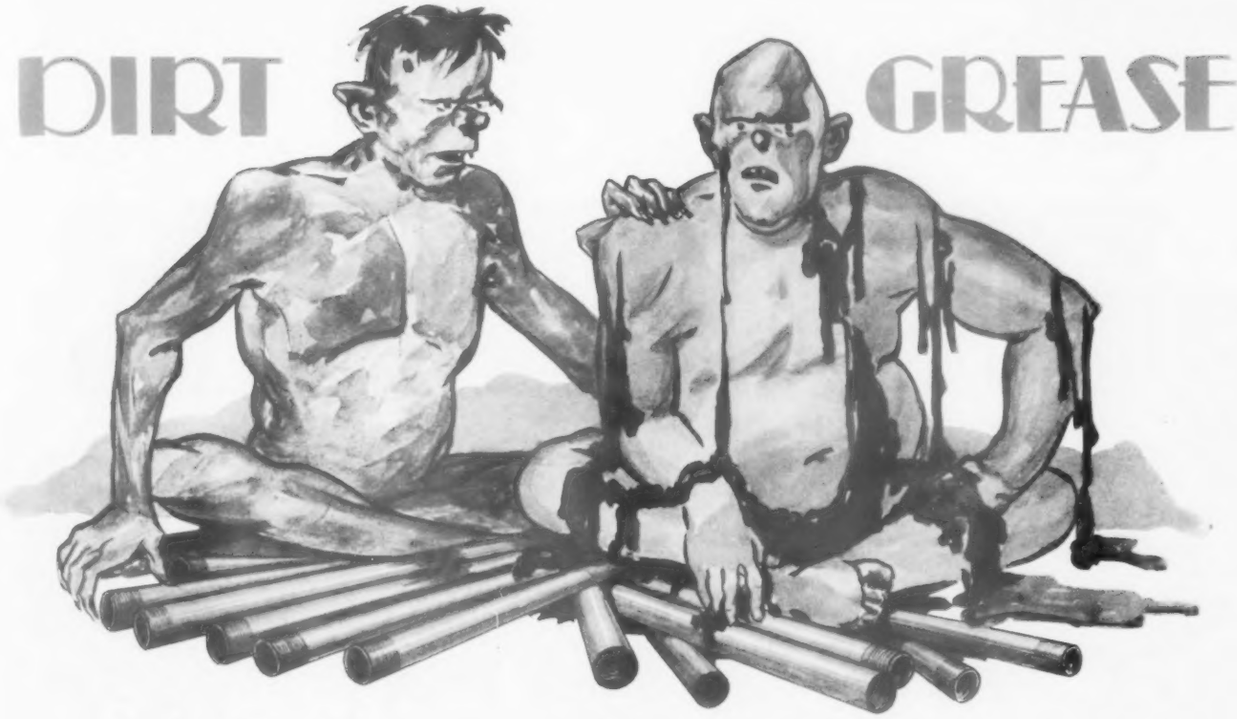
There is much satisfaction in knowing that when difficult installation problems are encountered which place extra strain on the pipe, such as, crossing rivers and deep ravines, that the pipe can be counted upon to meet these special conditions in a thoroughly satisfactory manner. The extensive use of NATIONAL for lines involving unusual engineering problems is substantial evidence of the reliability of this pipe for special and difficult conditions—one of the reasons why NATIONAL is

AMERICA'S STANDARD PIPE FOR OIL AND GAS LINES

NATIONAL TUBE COMPANY · Pittsburgh, Pa.

Subsidiary of United States Steel Corporation

NATIONAL PIPE



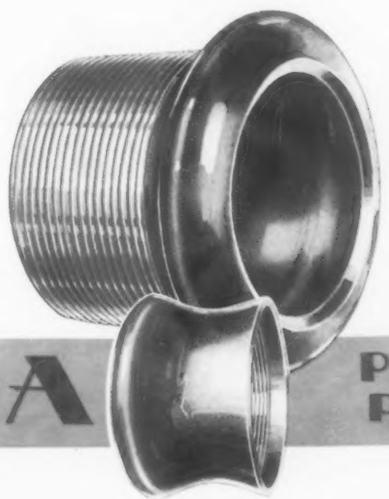
It's So Easy to Beat Out These Twin Enemies of Pipe-Thread

DIRT, hardknocks, careless handling and accidents all wage a relentless war on good pipe from the shipping platform of the mill to the dusty oil fields where the pipe is used. Unprotected couplings become clogged with sand and dirt—pipe threads become battered and damaged.

Make sure you don't have to put up with these costly, troublesome, nuisances by specifying Colona Protected Pipe fitted with Colona Thread Protectors.

By means of the specially designed Colona Cap and Nipple both the *ends* of the pipe as well as *threads* are given complete protection against the most severe handling hazards.

Colona Division
PITTSBURGH SCREW AND BOLT CORP.
PITTSBURGH, PENNA.



COLONA PIPE THREAD PROTECTORS

If DRILLITE cost more, it would be cheaper

DRILLITE
in Paste Form

Will be Introduced at *Booth* 14, *Texas Building* during the Oil Show

. . . . application difficulties for diamond-like facings have been conquered by this new method of applying diamond-sub surfaces! . . . . No jigs, no "slop overs", no porosity, no worries . . . . *Paste Drillite* is the answer to the operators application problems!

National
TOOL & METALS INC.
P. O. Box 818
TORRANCE CALIFORNIA

OCT -9 1929

© C l B 47173

A Gulf Publishing Company Publication

The OIL WEEKLY

Member Audit Bureau of Circulations

VOLUME 55, No. 3

OCTOBER 4, 1929

Edited Weekly at Houston, Texas

SPENCER W. ROBINSON, EDITOR

TABLE OF CONTENTS

Special Features

East Earlsboro Cut 50 per cent by Commission Order — 53
By Grady Triplett

California Operators Far From Agreement on Handling Surplus Gas — 54
By Brad Mills

Technical and Association Meetings Feature Sixth International Petroleum Exposition — 55

Program — International Petroleum Exposition and Congress — 61

Care in Drilling Makes Great Depths Easy to Attain — 64
By Brad Mills

Deep Drilling Revives Old Fields in Gulf Coast — 68
By Jack Logan

Time for Deep Drilling Has Not Arrived in South America — 71
By Roy E. Leigh

Modern Methods and Equipment Lower Costs on World's Deepest Producer — 73
By H. H. King

Oklahoma Requires Heaviest Drilling Equipment — 75
By Harry Pennington

Factors Effecting Footage Costs on California Deep Wells — 101
By Brad Mills

Calgary Convention Visitors Learn About Canadian Oil — 109

Roumanian Oil Industry Expanding — 121
By Nic N. Stefanescu

The Economic Lesson of 1928-1929 — 124
By Joseph E. Pogue

Hazards in Pipe Line Construction — 128
By B. F. Fisher

Regular Departments

Advertiser's Index — 290
Markets-Production-Crude Prices — 197
United States Production Estimates — 203
Crude Oil Price Quotations — 200
Completions for Past Week in All U. S. Fields — 234
Permits Granted for New Wells — 268
Wildcat Drilling Reports from All Important Areas — 242
News from California Fields — 222
North and West Texas Field Notes — 211
Gulf Coast Field Development Notes — 215
Oklahoma-Kansas Field Notes — 204
News from Rocky Mountain Fields — 220
Personal Mention — Men You Know — 224
Louisiana-Arkansas Development Notes — 219
New Equipment, Catalogs, Bulletins, Books — 285
Squeaks from the Bull Wheel — 288

Copyright, 1929

Published Weekly

by

GULF PUBLISHING COMPANY

OFFICE OF PUBLICATION

3301 Buffalo Drive, Houston, Texas

R. L. DUDLEY, *President*

A. L. BURNS, *Gen'l Manager*

SPENCER W. ROBINSON, *Editorial Director*

J. KENT RIDLEY, *Managing Editor*

NEW YORK: Room 613, 250 Park Avenue
Dick Swinsky, Manager.

PITTSBURGH: 703 Park Bldg., W. W. Pigue, Manager.

CHICAGO: 624 S. Michigan Ave., O. R. Waller, Manager.

LOS ANGELES: 416-417 Haas Bldg., W. E. Green, Manager.

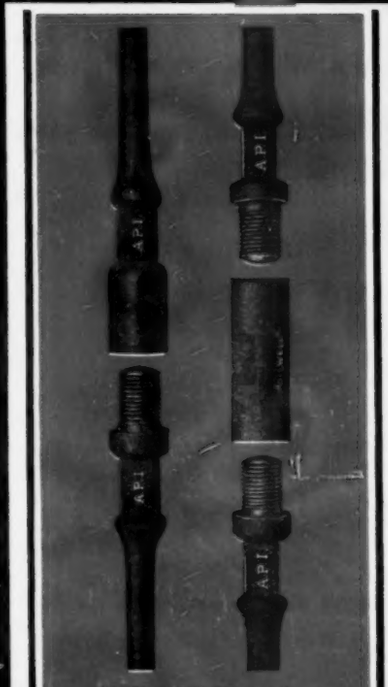
TULSA: 913-916 Hunt Bldg., J. F. Carter, Jr., Manager.

FORT WORTH: 203 W. T. Waggoner Bldg., H. H. King, Manager.

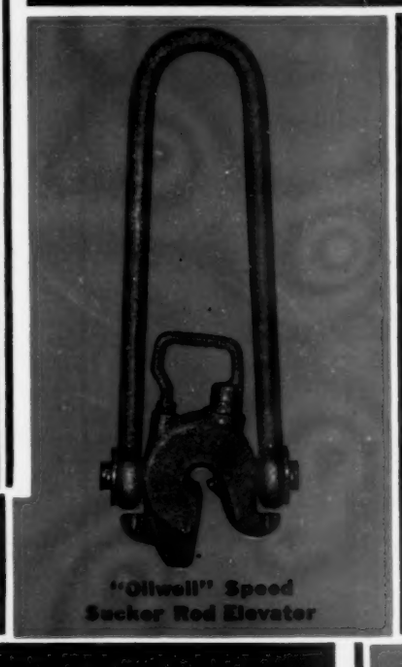
Issued Friday of each week. Single copies 10 cents. Subscription price: Domestic $1.00 a year, Foreign $1.00 a year. Subscription restricted to those engaged in the producing and pipe line branches of the oil business or the manufacture and distribution of oil field supplies. Advertising rates on application.

Speed

SAFETY..... EFFICIENCY



"Oilwell" Hercules Sucker Rods


"Oilwell" Speed Sucker Rod Elevator

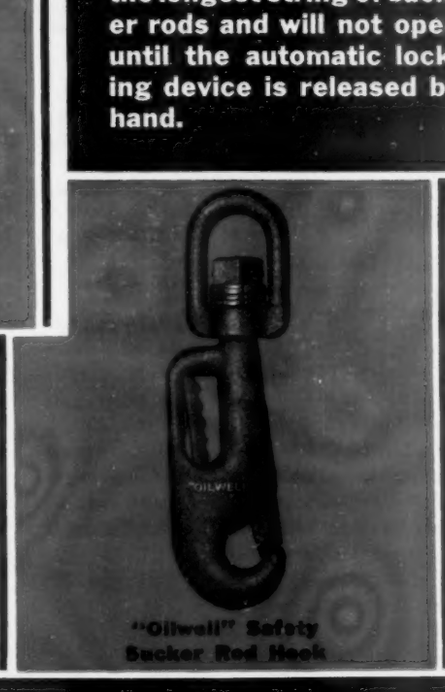
An "Oilwell" Safety Sucker Rod Hook, an "Oilwell" Speed Sucker Rod Elevator and "Oilwell" Hercules Sucker Rods make an installation that operates with maximum efficiency, speed and safety. The Hook is heavy enough to handle the longest string of sucker rods and will not open until the automatic locking device is released by hand.

IT'S FROM "OILWELL"

The body of the "Oilwell" Elevator is reversible. Bail supports are part of the body and there is no complicated mechanism such as toggle, hinges, etc. Sand or paraffin cannot clog the protected locking pins.

"Oilwell" Sucker Rods conform to A. P. I. standards. Each rod is upset and made from one piece of weldless steel—heat treated. Furnished in two styles—box and pin, or pin and pin with coupling.

For further information inquire at any "Oilwell" branch store.


"Oilwell" Safety Sucker Rod Hook

OIL WELL SUPPLY CO.

NEW YORK—LOS ANGELES—PITTSBURGH, U.S.A.—SAN FRANCISCO—TAMPICO—LONDON

WORLD'S OLDEST AND LARGEST MANUFACTURERS OF OIL FIELD EQUIPMENT

East Earlsboro Cut 50 Per Cent By Commission Order

Principal operators in area are petitioners in action to restrict output; weekly gauges provided

By GRADY TRIPLETT
Staff Representative

OKLAHOMA CITY, Oklahoma.—That part of the Seminole district, known as East Earlsboro, came under the ban of proration by order of the Oklahoma Corporation Commission September 28. The order was issued September 27, following a hearing in the morning on a petition field by the Barnsdall Oil operation, as representative of the sentiment of a majority of the oil producers of the territory.

East Earlsboro is described in the order as Section 24-9n-5e and Section 7, 8, 17, 18, 19, 20, Township 9 North, Range 5 east, all in Seminole County. The order of the commission, which names Ray M. Collins as its official to enforce its regulations, is to reduce the output of the area one-half for the next 30 days.

The hearing before the Commission failed to find as much opposition as had been anticipated. Although lease holders of the area met in Tulsa the week previous and went on record as favoring curtailment in the area, there was not uniform accord as to the method. The petition of the Barnsdall Oil Corporation brought R. F. McArthur, vice president of the concern, and Ray M. Collins, who served as umpire of the Greater Seminole area during the past two years. Mr. McArthur and Mr. Collins both testified to the effect that present production and present drilling at East Earlsboro constituted a condition that will bring about waste of crude oil, unless checked.

Magnolia Opposes Order

Representatives of the Magnolia Petroleum Company opposed any order applying to East Earlsboro on the ground that wells there have been falling off in production so rapidly that indications are the peak of 80,000 to 100,000 as expressed, would not be reached. Gypsy Oil Company representatives favored the curtailment of 50 per cent.

The hearing was closed and the order prepared and issued shortly afterward. This order sets out that the Oklahoma City pool, now under 100 per cent. shutdown, and the East Earlsboro, together with other drilling in Oklahoma constitute waste as defined by the laws of Oklahoma. The part of the order dealing with the method of handling the situation in East Earlsboro reads:

"Beginning at 7 o'clock a. m., September 28, 1929 and ending at 7 o'clock the following day, each operator owning an oil and gas lease or leases within the area above described shall take a gauge of his total production from each of his leases for the 24 hour period above fixed. Provided, to insure accuracy and equality among operators in said pool in regards to their respective potentials, the umpire, hereinafter appointed, immediately upon the granting of this order, and in respect of each producing lease ordered gauged hereunder, shall appoint as a witness of the gauge of production from such lease a representative of an operator owning an adjoining lease. It shall be the positive duty of the person so appointed to be present on the lease to be gauged throughout the entire 24-hour period such gauge shall be in progress, and witness and verify the correctness of the same. The operator and the witness, the day said gauge is completed, jointly shall file with the umpire a written statement of the total production from said lease for said 24-hour period, and the figures so reported and verified shall constitute the potential production of said lease for the purposes of the restriction imposed by these regulations for the succeeding seven days. Further to prevent any inequality or injustice in the determination of potentials, copies of all reports of potentials shall be mailed forthwith by the umpire to each operator subjected hereto.

Weekly Gauges

"In the manner above provided and during the 30-day period covered by these rules and regulations, a new gauge of the total production of each lease subject to this order shall be taken on each seventh day, the potential thereby determined to control curtailment under this order for the succeding seven days. Upon the basis of the potentials so determined and established, each operator producing oil in the area above described shall pinch in all of his wells to 50 per cent. of their potential capacity, this restriction to apply for the period of 30 days beginning September 28, 1929, subject to the readjustment of potentials taken weekly as above provided. The production on the day of taking new potentials shall not be considered as free or allowed production. The excess production shall be deducted from the allowed production during the six days of proration so that the total production for each seven day period shall equal 50 per cent. of the total potential production for that period. To establish equality between producing and drilling wells in said area any well drilling therein when the 50 per cent. curtailment above provided for shall became effective shall be shut in at the final casing point, subject to the following conditions: seven days shall be allowed for the cement to set cementing one string of casing and thereafter in addition to said seven days said well shall be shut down for a further period of 15 days and the well may be produced to its full capacity during the balance of the 30 day period covered by these rules and regulations."

List of Petitioners

As in the case of the order of shutdown for the Oklahoma City, the order for East Earlsboro did not bear the signature of Chairman Childers of the Corporation Commission. Fred Capshaw and E. R. Hughes signed the East Earlsboro order, their signatures being those signed to the Oklahoma City order.

Names appearing on the petition, filed in the name of the Barnsdall Oil Corporation were Amerada Petroluem Corporation, Burk-Greis Oil Company, Continental Oil Company, Gypsy Oil Company, Mid-Continent Petroleum Corporation, McMan Oil & Gas Company, Shell Petroleum Corporation, Sinclair Oil & Gas Company, Wrightsman Petroleum Corporation, Pure Oil Company, W. H. Pomeroy, Atlantic Oil Producing Company, Carter Oil Company, Devonian Oil Company, Independent Oil & Gas Company, Minnehoma Oil & Gas Company, Prairie Oil & Gas Company, Skelly Oil Company, The Texas Company, Tidal Oil Company, Dixie Oil Company, Magnolia Petroleum Company, and T. B. Slick.

California Operators

Far From Agreement On

Handling of Surplus Gas

By BRAD MILLS
Staff Representative

LOS ANGELES. — Enforcement of the gas saving law in California, and incidentally the reduction of oil by a large figure, has become such a complicated matter that it is difficult to make an accurate analysis of the situation, despite several attempts to induce the operators to handle the affair without throwing the bulk of the burden on the state.

The seven major operators on one hand and a large percentage of independent operators are finding it a difficult matter to get together on the proposed agreement to prorate gas used on contracts and for repressuring. The seven majors have agreed on the provisions outlined and are now making an effort to win over the independents. Each company is represented by one member of the committee, seven additional members to be appointed chiefly from among the independent operators.

The most damaging angle to the whole situation is that while the state is attempting to enforce the law and operators are wrangling among themselves—floundering around for the inside track—gas is being wasted at the rate of about 600 million cubic feet daily and oil production is fully 200,000 barrels higher than the economical level. It is difficult to place the blame on any group and no effort has been made to do so, but the fact that the law is being broken seems of sufficient importance to warrant more drastic action on the part of the state, provided the law proves equitable to all concerned.

The question of the constitutionality of the law is paramount in the minds of several companies opposed to its enforcement, and it is a fact that its complete enforcement would work a hardship on a few small operators. This question, coupled with the opposition to the measure from several other sources, has made it a difficult matter for the state to make a good showing against tremendous odds.

Property Rights

The thought that a man has the inalienable right to produce his leases as he sees fit, in spite of the claim that the public good is being jeopardized, is playing an important part in the lack of enforcement and the partial ignoring of the law to prohibit gas waste. One operator points out the fact that he has worked hard and long and at great expense to develop production at Santa Fe Springs. During his failure to get worthwhile production, several operators were drawing the flush from the Buckbee and O'Connell zones. Now this operator claims the right to produce his leases after the statute has become effective. This standing on what some operators term their constitutional rights has certainly not aided the state in its eagerness to enforce the law.

At a meeting held in the offices of the state railroad commission at Los Angeles, September 27, many interesting details were brought out by both representatives of major and smaller companies. Reed D. Bush, state oil and gas supervisor, presided at the meeting and stated that it was his understanding that the independent operators would be given a chance to present claims for modification of the agreement recently drawn up and signed by the seven major operators.

Paul Gregg, attorney for Union Oil Company, who had a prominent part in drafting the agreement, stated that it was not his understanding that the meeting was called for hearing arguments for modification, but rather to have the agreement explained to the satisfaction of the independents, if possible. He indicated that he would strongly oppose modification.

In explaining the provisions of the agreement, which has been termed the Cooperative Gas Conservation Association, Gregg brought out several points of interest and placed a slightly different interpretation on it than had been held in some quarters. He explains several things the agreement could and could not do, particularly as regards the distribution of gas. He said the agreement was an attempt to draw together all outlets to the four fields involved—Santa Fe Springs, Long Beach, Seal Beach and Ventura—and to take the gas on the basis of proration for that actually used. Gregg explained that there was nothing in the agreement which even prevents blowing gas into the air, the primary purpose being to fairly allocate the gas actually used on contracts and for repressuring and storing purposes. It was explained that the amount of gas sales and deliveries above the minimum contract requirements probably would be about one-fourth of the total expense. Assurance was given that the seven major companies signing the agreement had asked that the independent operators name five of the seven remaining to be chosen for the managing committee of 14.

Judge E. D. Reiter, chairman of the independent operators' committee which met last week to consider the agreement, asked R. D. Bush, state oil and gas supervisor, who presided at the meeting, for a continuance of the hearing until October 14, in order that the smaller companies could make a more exhaustive study of the agreement before giving their opinions.

James S. Bennett, attorney for the director of natural resources, said that the request should be granted, provided it would not be used as a basis for further continuance of the action for injunction proceedings now pending and the continuation of injunction proceedings to be instituted relative to gas waste in other fields. He explained that the bill was signed by the govenor three months ago and was declared an emergency measure, but since the signing more than 60 billion cubic feet of gas had gone to waste. This represented a loss of more than six million dollars at 10 cents per thousand, or 10 million dollars if based on the oil equivalent.

Blowing Not Permitted

Bennett created surprise in some circles when he placed a late interpretation on the gas law. He explained that the law does not permit blowing gas into the air, even if the gas-oil ratio is lower than that set as a fair average by competent engineers, while, on the other hand, if the gas-oil ratio is unreasonably high, and apparently there is no waste, there may be an unreasonable waste anyway, at least from an economical standpoint, and the state may have a right to prevent such a condition. In other words, if an operator is producing twice as much gas as he is supposed to produce, yet is finding a market for it, he may still be guilty of an unreasonable waste.

Bennett said that if no repressuring arrangement is made at Ventura, pro-

(Continued on Page 229)

Technical and Association Meetings Feature

Sixth International Petroleum Exposition

TULSA, Oklahoma.—All to the end that those of the petroleum industry may come and see! For several months a few men have been writing letters, sending telegrams, arranging rooms and attending to the other several thousand details that go into the making of an International Petroleum Exposition and Congress. For several weeks scores of men have been digging ditches, pouring concrete, laying pipe, erecting derricks, setting up engines, moving in rigs and doing the other several thousand acts that go into placing equipment of the "World's Fair of the Oil Industry."

What these men have done will be in order and ready when the gates swing open October 5 for the sixth International Petroleum Exposition and Congress. No oil pool ever had a more feverish siege of activity than has the area known in the Exposition office as "outside space." In side there has been activity but of less strenuous type, for the equipment that goes there is not so heavy and the foundations that bear it do not need such deep footing.

Now it is all in place, from the latest in rigs and derricks down to the most delicate geophysical instrument.

The International Petroleum Exposition & Congress of 1929 will offer marked development in the scientific meetings and other gathering of serious nature. When the institution was established, the Congress was looked upon as a leading phase of the affair. These features, however, did not progress with those of the phase of the display of equipment. But this year finds the affair swinging back to the Congress division of the affair, without any detriment to the displays of field, refining, natural gasoline and marketing equipment.

These features in reality started in advance of the Exposition. The American Petroleum Institute Committees on the Code of Business Practices for the Petroleum Industry met October 3, two days before the opening of the Exposition. This meeting was followed by a meeting of the directors of the Institute October 4. The directors met to handle routine business matters and to hear the report of the committees, which have put in a strenuous month in behalf of the Code.

Another organization to select dates in advance of the Exposition was the Refiners division of the National Association of Credit Men. Two days, October 3 and 4, were devoted to a program dealing with the business of credit as it applies to the petroleum industry.

October 3 and 4 were the dates selected for the fall meeting of the Mid-Continent division of the American Institute of Mining & Metallurgical Engineers. The program previously announced was carried through.

Each of these organizations had its meetings at the Mayo hotel. With the business completed, those here for the meetings were free to devote full time of the next day to attending the Exposition.

Mid-Continent District, A. P. I.

During the Exposition, October 7 and 8, the Mid-Continent district, division of production and development engineering of the American Petroleum Institute, will hold its annual meeting. These sessions will be held in the new auditorium at the Exposition grounds.

The American Association of State Geologists will come to Tulsa October 8, the end of a series of field trips, which began the previous week at Ardmore and covered the Arbuckle moun-

The Exposition's Duty

THE International Petroleum Exposition at Tulsa has a number of distinct duties to perform if the Exposition is to be made a permanent annual affair. The duty of the Exposition does not end with the lining up of exhibits of modern equipment. It is our belief that the Exposition should take steps beyond what it has taken in the past, to insure the attendance from all over the world of men who can profit by what the Exposition has to offer. The complaint has been voiced in some parts of the country that the Exposition is an Oklahoma affair. We do not believe that this is true, but at the same time we believe that attendance from points outside of Oklahoma is not as great as it should be.

It is our suggestion, therefore, that the Exposition provide a special department, under the general manager, to develop attendance.

It is our belief that this official should personally visit during each year all of the important oil companies of the United States to point out the value of the Exposition to their men and arrange for representation at the Exposition.

It is too much to ask that all companies send all of their superintendents and engineers each year, and such a request would not be heeded, but undoubtedly a plan could be worked out and suggested whereby part of the superintendents, foremen and engineers of each company could attend the Exposition one year, a part the next year and the remainder the third year.

The Exposition is to be complimented on the efforts being made to secure important conferences or conventions at Tulsa during the Exposition. This idea can be developed still further and can be worked in connection with the plan suggested above.

We repeat, it is the duty of the Exposition to see to it that as many key men as possible be brought to the Exposition each year. Unless this is done, the Exposition will suffer.

tain region in southern Oklahoma as well as territory around Sherman in northern Texas.

A petroleum conservation meeting will be held October 8, with W. F. Chisholm, president of the National Petroleum Conservation Service, in charge.

As had been the practice at past Expositions the annual safety first meet, sponsored by the Safety Division of the Mid-Continent Oil & Gas Association, the United States Bureau of Mines and the National Safety Council, will be held during the event. The date is October 10. The meet in the afternoon will be followed by the annual banquet that evening.

The annual meeting of the Kansas-Oklahoma Division of the Mid-Continent Oil & Gas Association will be held October 9, with the banquet in the evening.

Something new for the Exposition will be the program for marketers, October 11. This meeting will give consideration to the Code of Business Practice. R. R. Irwin, president of the White Eagle Oil & Refining Company of Kansas City, will preside. The speaker will be H. B. Earhart, president of the White Star Refining Company of Detroit.

Aviation has been carded to play a role throughout the whole Exposition. The "On to Tulsa" Air Derby will end at the Exposition grounds between 11 o'clock a. m. and 6 o'clock p. m. October 5. Thereafter there will be varied aerial exhibitions both day and night. Then there will be an extensive display of airplanes.

Although an established part of the International Petroleum Exposition and Congress, the golf tournament shows continued and growing popularity. Qualifying round matches will be played October 7, the match play to begin October 8 and be completed October 10. Play will be for trophies in each flight and for the Exposition trophy, going to the winner each year.

Many foreign governments of the oil producing countries have designated official delegations to the Exposition. The leading oil producing states of this country will have official delegates present. There will be special trains and special delegations from many oil producing sections of the Mid-Continent area. Railroad rates have been reduced for the event.

Constant search for new development has given the scientific building a list of exhibits which will hold the interest of the students of the petroleum industry. From geology to refining, the latest that the industry affords will be on display.

Aviation

For the first time aviation will be one of the foremost attractions of the International Petroleum Exposition and Congress. An elaborate display of airplanes, with numerous aerial events will comprise this division of the oil show.

The "On to Tulsa" air derby will finish October 5, the opening day of the Exposition, at the grounds. This event will see airplanes of the petroleum industry and affiliated industries in competition for trophy and cash prizes. Airplanes entered in the derby will start at points at least 500 miles from Tulsa and finish between 11 a.m. and 6 p.m. at the grounds.

The pilot with highest figure of merit on the formula: wing area in square feet times the cube of the miles per hour flying time, divided by the cubic inch displacement, will be given first place, which carries a cash prize of $2,000 and the International Petroleum Exposition silver trophy. Second and third places will carry prizes of $1,500 and $1,000.

The derby is sanctioned by the National Aeronautic Association and will be conducted under the rules of the Federation Aeronautique Internationale. Pilots eligible are those holding department of commerce, F. A. I. certificates and annual sporting licenses.

Airplanes entered must carry an approved type certificate and hold license thereunder, or have a restricted license issued by the Department of Commerce. The derby is open to any type of airplane, cabin or open cockpit, single or multimotor. The entrant may do anything to step up the performance of his airplane, so long as nothing is done in violation of the regulations of the Department of Commerce or the Federation Aeronautique Internationale.

The air derby will be the first of a series of aerial events. There will be five closed course races, each to cover five laps on a 10-mile course, marked by pylons. These races will be open at intervals for civilians only, army pursuit ships, navy pursuit ships and army Douglas observation airplanes. Prize money of $950 will be given winners of the two civilian events, while trophies will be awarded winners in the other events.

There will be night bombing demonstrations, as well as aerial fireworks demonstrations. These events will be staged at the Exposition, possibly at the race course of the Tulsa fair grounds, which adjoin the plant of the Exposition.

Among the noted fliers due to be in Tulsa during the Exposition are Captain Ira C. Eaker, pilot of the airplane "Question Mark," which set the first record in refueling; Colonel Arthur C. Goebel, Dole flight winner; Lieutenant Apollo Soucek, naval pilot; Eddie Rickenbacker, world war ace, and Lieutenant Ennis C. Whitehead, army flier of the South American good will tour.

E. J. Sadler, vice president of the Standard Oil Company of New Jersey, is due to fly to Tulsa from New York with a party of officials of his company. An airplane of that company will be in the derby. J. A. Talbot of the Richfield Oil Company has announced that his company will have an entry to fly from Los Angeles to Tulsa.

Advance information is that at least six airplanes will enter from the Pacific Coast. There will be entries from New York, Baltimore, Washington, Chicago, Seattle and San Francisco. At this writing the entry list is not complete. The Skelly Oil Company, Continental Oil Company, Phillips Petroleum Company, Independent Oil & Gas Company and the Texas Pacific Coal & Oil Company will have entries.

Where company headquarters are not 500 miles from Tulsa, the entered airplanes will go to a point at least that far away for the start.

Foreign Delegations

As usual the International Petroleum Exposition and Congress will draw visi-

Increasing the Exposition's Value

OFFICIALS of the International Petroleum Exposition are naturally very anxious that the Exposition prove as valuable as possible to the people who attend it. They realize that the big value of the Exposition to engineers, superintendents, purchasing agents, foremen and executives will depend very largely upon the careful attention of visitors at the Exposition toward the equipment shown there.

It is not surprising, therefore, that officials of the Exposition are anxious that the soft pedal be put on "parties." There have been men who have attended the Exposition in the past who got no further than some of the downtown hotels. In that event, the man was wasting not only his company's time and money, but wasting an opportunity for himself.

The Petroleum Exposition at Tulsa is a business proposition and should be regarded as such by those who attend. There are some who would say that the oil men attending the Exposition are not primarily to blame for the "parties;" that may or may not be true, but certainly the officials of the Exposition deserve every co-operation from every person to make the Exposition a business affair and not a playground.

MEN WHO MAKE THE EXPOSITION

1—W. G. Skelly, president, president Skelly Oil Company. 2—Frank J. Hinderliter, vice president, president Hinderliter Tool Company. 3—Alf G. Heggem, vice president, president Oil Well Improvements Company. 4—A. W. Leonard, treasurer, general manager Devonian Oil Company. 5—William Holden, secretary, secretary Tulsa Chamber of Commerce. Directors: 7—Clyde Alexander, vice president, Phillips Petroleum Company. 8—A. A. Beard, oil producer. 9—F. R. Billingslea, oil producer. 10—A. F. Bourne, Oklahoma Iron Works. 11—N. M. Bovaird, Bovaird Supply Company. 12—J. H. Brooks, Republic Supply Company. 13—O. T. Dawson, National Supply Company. 14.—R. E. Day, Magneto Ignition Corporation. 15—C. P. Dimit, Gypsy Oil Company. 16—R. L. Dudley, Gulf Publishing Company. 17—George A. Dye, H. F. Wilcox Oil & Gas Company. 18—John M. Egan, Petroleum Publishing Company. 19—J. P. Flanagan, oil producer. 20—H. V. Foster, Indian Territory Illuminating Oil Company. 21—Jacob France, Mid-Continent Petroleum Corporation. 22—Robert F. Garland, oil producer. 23—J. Burr Gibbons, Oil Well Improvements Company. 24—Walter Gray, Jarecki Supply Company. 25—Henry Greis, oil producer. 26—R. A. Griffith, Sinclair Oil & Gas Company. 27—Brooks Gutelius, Continental Supply Company. 28—P. D. Hayes, Exchange National Bank.

MEN WHO MAKE THE EXPOSITION

6—W. B. Way, general manager. Directors: 29—J. M. Hayner, oil producer. 30—B. E. Horrigan, oil producer. 31—Fred W. Insull, Oklahoma Public Service Company. 32—Joe McGraw, McGraw Oil Company. 33—D. F. McMahon, oil producer. 34—Walter Miller, Continental Oil Company. 35—Harry J. Morlang, oil producer. 36—E. J. Nicklos, Continental Oil Company. 37—Clyde Pape, Selby Oil & Gas Company. 38—J. Edgar Pew, Sun Oil Company. 39—Waite Phillips, Independent Oil & Gas Company. 40—Warren C. Platt, National Petroleum News. 41—J. M. Post, Oil Well Supply Company. 42—Ralph B. Pringle, Independent Oil & Gas Company. 43—E. B. Reeser, Barnsdall Oil Corporation. 44—Harry H. Rogers, Exchange National Bank. 45—J. H. Satterwhite, Westcott & Greis. 46—W. A. Schlueter, Refinery Supply Company. 47—R. C. Sharp, oil producer. 48—J. S. Sidwell, Prairie Oil & Gas Company. 49—Harry H. Smith, Mid-Continent Oil & Gas Association. 50—Victor H. Smith, Gulf States Terminal & Transport Company. 51—O. C. Staples, Frick-Reid Supply Company. 52—D. D. Wertzberger, Wertzberger Derrick Company. 53—T. R. Weymouth, Oklahoma Natural Gas Company. 54—R. M. Young, Carter Oil Company.

ors from foreign countries. Most of these will come from countries which have oil production. Certain of these have been designated official representatives of their governments.

Among the delegates announced are Juan B. Sacasa, Nicaraguan minister; L. V. Boggs, Roumania; W. R. Young, England; W. J. Campbell, Venezuela; J. A. deLanoy, England; W. W. Goulston, England; Nicholas Antonoff, Russia; Michael V. Barinov, F. Roustanbekov, S. Khanbekov and A. G. Fishson, L. Norsossoff and N. V. Adramomitch, all of Russia; C. W. Wood, Mexico; John Gayner, Mexico; Victor de Metz, Jean de Montlebart, D. Dragulanescu, and N. Stefanscu, all of Roumania; Eduard Saubidot Bilboa, Argentine; Dr. Santiago Bedoya, Peru; Dr. Luis Calvani, Venezuela; Jezef Czerwinski, Poland.

There will be representatives from Holland and from other foreign countries.

Independent Petroleum Association

An organization meeting of the Independent Petroleum Association of America will be held October 10 in Tulsa in connection with the International Petroleum Exposition and Congress. This organization was formed in Colorado Springs, following the conference on the interstate compact June 10. Wirt Franklin of Ardmore was elected president and the organization perfected.

Later an office was opened in Ardmore. At the time of organization it was announced that executive headquarters would be established in Tulsa. The membership meeting during the Exposition is expected to bring further announcement in regard to membership, activities and headquarters.

This association was formed for the purpose of making an effort to have crude oil put on the tariff list, something that was done in the past few weeks; also to bring a modification of the attitude of the federal government toward the public domain of the "public land states" of the West.

H. B. Fell of Ardmore was elected executive secretary and Miss Margie Montgomery of Amarillo, Texas, a vice president.

Vice presidents by territories were chosen as follows: Texas, E. G. Bedford, Midland; Louisiana, W. Scott Heywood, Jennings; Oklahoma, R. D. Pine, Ardmore; Utah, H. C. Conley, Green River; Arkansas, J. W. Olvey, El Dorado; Colorado, Dr. A. W. Green, Denver; Montana, C. J. Cousmaun, Baker.

At the time of organization a committee was named to perfect constitution and by-laws; another as an executive committee. The coming meeting in Tulsa will be the first general meeting to have opportunity to hear reports of these two committees.

The meeting will be held in the new auditorium at the Exposition grounds.

Mid-Continent Association

The annual meeting and banquet of the Kansas-Oklahoma division of the Mid-Continent Oil & Gas Association will be held October 9 in Tulsa. This meeting has been held during the International Petroleum Exposition and Congress for several years and will be one of the highlights of that event this years.

The annual meeting will take place in the afternoon at headquarters of the organization in the Tulsa Building. Officials and directors for the next year will be elected. There will be other business matters come before the meeting.

The banquet that evening will be held in the Crystal Ball Room of the Mayo Hotel and will draw about 500. The speakers will include Homer S. Fox of the United States Department of Commerce; Governor W. J. Holloway of Oklahoma, and Harry H. Rogers, president of the Exchange Banks of Tulsa, as well as others. A discussion of the new conservation law of California is to be discussed by a representative of the petroleum industry from that state.

Mr. Fox is stationed in London, as a representative of the Department of Commerce of the United States and is expected to present problems of foreign trade, especially as they influence the petroleum industry.

While the meeting is one for the Kansas-Oklahoma division, it will draw attendance from the whole Mid-Continent Oil & Gas Association, whose territory includes Kansas, Oklahoma, Texas, Louisiana and Arkansas. Officials of the Kansas-Oklahoma division are J. C. Denton, Mid-Continent Petroleum Corporation, president; C. C. Herndon, Skelly Oil Company, first vice president; A. M. Landon, Independence, Kansas, vice president for that state; Wirt Franklin of Ardmore, vice president for Southern Oklahoma; John H. Kane of the Phillips Petroleum Company, Bartlesville, vice president for Northern Oklahoma. H. H. Smith is secretary of both the Kansas-Oklahoma division and the general association, with headquarters in Tulsa.

William N. Davis, vice president of the Phillips Petroleum Company, Bartlesville, is president of the general association.

State Geologists

The American Association of State Geologists will come to Tulsa October 8 to visit the International Petroleum Exposition and Congress, following a series of field trips in Southern Oklahoma and Northern Texas. These geologists will meet in Ardmore October 3. Two days will be spent in the Arbuckle Mountains of Oklahoma. C. W. Tomlinson, geologist, of Ardmore, will be in charge of this part of the trip, assisted by Charles N. Gould, director of the Oklahoma geological survey.

The third day will be spent in studying rocks of the cretaceous age between Ardmore, Oklahoma, and Sherman, Texas, under the guidance of E. H. Sellards, state geologist of Texas, and Dr. Fred M. Bullard of the faculty of the University of Texas. The next day will be spent in travel from Texas toward Tulsa, while some of the larger oil fields of Oklahoma, including Seminole, will be visited.

The day in Tulsa will find the state geologists guests of the International Pe-

EXPOSITION EQUIPMENT DIRECTORY

Beginning on page 131 will be found a complete directory of all exhibitors at the International Petroleum Exposition giving a list of the products exhibited and names of representatives attending the show. This service has been provided for the convenience of those interested in specific equipment and can be used as a permanent record for future reference to the various exhibits.

PAGE 131

troleum Exposition and Congress, with the Tulsa Geological Society as host. A dinner will be served in Tulsa.

Among those in the delegation are W. R. Jillson of Kentucky, R. D. George, Colorado; E. H. Sellards, Texas; Raymond C. Moore, Kansas; M. M. Leighton, Illinois; Charles N. Gould, Oklahoma; G. E. Contra, Nebraska, and W. F. Chisholm, Louisiana.

Company Men

Practice of the leading oil companies of having their key men come to Tulsa for the Exposition will be continued this year on a broad scale. These concerns have provided regular schedules, so that men from each producing, refining and natural gasoline district may come at a specific time. They will visit the Exposition for definite purposes, be the guests of officials of the Tulsa headquarters and then return so others may follow.

One of the elaborate company delegations will be that of the Skelly Oil Company, headed by W. G. Skelly, who is also president of the International Petroleum Exposition and Congress. It happens that the celebration of the tenth anniversary of this company will come just in advance of the Exposition. This event will be celebrated with a picnic in Tulsa, October 4. The following day, which marks the opening of the Exposition, will be devoted to a visit to the grounds. A golf tournament will be held that morning.

A special train will arrive in Tulsa the morning of October 4 from El Dorado, Kansas, where the Skelly refinery is located. Pullmans from Kansas City will be put into this train at Independence. Other Skelly employes will come from points as far away as the Canadian border and the Gulf Coast. Those near Tulsa will come by automobile.

Old Timers

Some definite announcement in regard to the building of a home for men, who have given their working years to the petroleum industry, is forecast for "Old Timers" day, October 9, at the International Petroleum Exposition and Congress. A permanent organization was formed last year.

Joseph H. Evans, president of the Devonian Oil Company of Tulsa, is president; James Amm, New York capitalist, is vice president; Omer K. Benedict, vice president of the First National Bank, is secretary, and Arch W. Leonard, vice president of the Devonian Oil Company of Tulsa, treasurer.

Barney E. Horrigan, independent oil producer of Tulsa, is again chairman of the committee, which will handle all activity of the day. On October 9 ballots will be counted to determine new members of this organization. Then the "Grand Old Man of the Industry" will be selected and the most popular veteran of Tulsa will preside. Activities will be completed with a banquet at the Mayo Hotel.

Plans for building a permanent home for veterans workers of the industry have been under consideration for several years. Those vitally interested in the proposition have indicated some definite word on the subject this year.

Golf

The qualifying rounds in the Exposition Golf Tournament will be played over the course of the Tulsa Country Club October 7. Eighteen hole rounds will determine the flights for match play, which will begin October 8. Match play in each flight will be continued through October 9, leaving the championship matches to be played October 10. All match play will be 18 holes, except the championship rounds, which will be for 36 holes, except where contestants agree to 18 holes.

The tournament will be played for possession of the Exposition trophy, now held by Walter Critchlow of Ardmore, who won in 1928 and also in 1927. There will be prizes for both winners and runners up in each flight.

The committee in charge of the tournament is headed by Frank Gray of the Prairie Oil & Gas Company as chairman. Other members are F. Lee Kennedy, John M. Risk, A. M. Bowman, Hal C. Moore, A. E. Bradshaw, D. B. Mason and C. F. Camp.

Preparations have been made for 600 in the tournament. The 1928 tournament drew 480 contestants, while there were 400 in 1927.

Scouts

Scouts have selected October 11 as their day at the International Petroleum Exposition and Congress. While the event will not be one fostered by the organizations of scouts, still arrangements made for entertainment and for seeing the Exposition are such that a representative gathering of "the eyes of the industry" is assured.

George Swab, head of the land department of the Barnsdall Oil Corporation, has made arrangements for the activities of the day.

THE Gulf Publishing Company, publishers of THE OIL WEEKLY, THE REFINER AND NATURAL GASOLINE MANUFACTURER, and THE PETROLEUM MARKETER, is pleased to announce that Mr. Roy E. Leigh, foreign representative and associate editor of THE OIL WEEKLY, who is back in the States for a brief stay, will be at the company's building at the Exposition.

Mr. Leigh has just completed that portion of his world-wide survey involving South American countries and certain of those in Central America. One of his prime purposes for a brief return to the United States was to attend the Exposition in Tulsa, where it was felt he could be of assistance to friends of THE OIL WEEKLY who desire first hand information regarding marketing conditions in South America.

Having been there most of this year and for a considerable length of time prior to commencing the world-wide survey, Mr. Leigh is conversant with all branches of the oil industry as pertains to South American operation. His knowledge of marketing prospects for refining, marketing and producing and transportation equipment in South America, together with an intimate acquaintance with the "tricks of the trade" necessary for the consummation of foreign enterprise, should be of value to manufacturers of equipment used in the oil industry, as well as to students of the industry from the international standpoint.

Schedule of Events

INTERNATIONAL PETROLEUM EXPOSITION *and* CONGRESS

Tulsa, Oklahoma, October 5th to 12th, 1929, Inclusive

SATURDAY, OCTOBER 5

W. G. SKELLY, President, Presiding.
Ralph Talbot, Chairman, Opening Ceremonies.

DIRECTORS OF THE DAY

R. C. Sharp, Chairman; J. H. Satterwhite, Harry J. Morlang, J. Burr Gibbons, J. M. Hayner, William Holden, Harry H. Rogers.

Opening Day; Producers' Day; Air Derby Day; Engineering Day; Drumright-Shamrock-Oilton Day; Enid and Garfield County Day; American Institute of Mining and Metallurgical Engineers' Day.

10:00 A.M.—Exposition gates will open to the "WORLDS FAIR OF THE OIL INDUSTRY."
Finish of the International Petroleum Exposition Air Derby, between 11:00 a. m. and 6:00 p. m.

2:00 P.M.—Official Opening by the Guest of the Day, Brigadier General B. O. Foulois, United States Army; Lieutenant Ennis Whitehead, United States Army. Music by Anthony Smith Band.

8:00 P.M.—Moving Pictures of the Petroleum Industry in the auditorium to the rear of the Scientific and Technical Building, entitled—"The Story of Lubrication — The Story of Lubricating Oil — The Story of Gasoline —The Story of a Mexican Oil Gusher." Music by Bert Galloway and his Musical Bugs.

SUNDAY, OCTOBER 6

DIRECTORS OF THE DAY

Dallas D. Wertzberger, Chairman; A. F. Bourne, W. M. Bovaird, Frank Hinderliter, J. Edgar Pew, J. S. Sidwell.

New York Day; Chicago Day; Drillers Day; Pumpers, Tooldressers, Roughnecks and Roustabouts Day; Farm Bosses Day; Kansas Day; Pipe Liners Day; Michigan Day.

ALL TULSA CHURCHES EXTEND A CORDIAL INVITATION TO EXPOSITION VISITORS TO WORSHIP WITH THEM THIS MORNING.

1:30 P.M.—Gates open.

3:00 P.M.—Special National Salvation Army Program. Major Ernest R. Holz presiding.

8:00 P.M.—Sacred Concert, Special Music; Choir and Chorus numbers. See Special Sunday program. Josephine Storey-White, Soloist. Albert E. Galloway, General Chairman. Rev. Guy C. Tetrick, Chairman, Ministerial Committee.

MONDAY, OCTOBER 7

DIRECTORS OF THE DAY

E. B. Reeser, Chairman; J. M. Post, Harry H. Smith, R. M. Young, Brooks Gutelius, T. R. Weymouth.

Texas Day; San Antonio Day; Midland Day; Houston Day; Fort Worth Day; Dallas Day; Natural Gasoline Day; Pithole Day; Seminole Day; Civitans Day; Kiwanis' Day.

8:00 A.M.—International Petroleum Exposition Golf Tournament opens at Tulsa County Club; F. S. Gray, Chairman. Eighteen Hole qualifying rounds to determine members of flights for match play — sixteen each flight.

10:00 A.M.—The American Petroleum Institute, Mid-Continent District, Division of Development and Production Engineering will hold sessions in the auditorium. J. R. McWilliams, Chairman.

MORNING SESSION

Opening Address — J. Edgar Pew, Sun Oil Company, Dallas, Texas.
"Repressuring Practice in the Mid-Continent." Group Paper, compiled by D. L. Trax, Consulting engineer, Gypsy Oil Company, Tulsa, Oklahoma.
T. A. Hall, Chief Engineer, Tidal Oil Company, Tulsa, Oklahoma.

1:15 P.M.—Well Pulling Contest, Safety Division, Mid-Continent Oil & Gas Association.

2:00 P.M.—AFTERNOON SESSION — American Petroleum Institute.
Discussion—"Repressuring Practice in the Mid-Continent." E. O. Bennett, National Chairman Production Practice Committee, will act as chairman of this session.

4:00 P.M.—Airplane Fifty-Mile Closed Course Race (Civilian Free-for-All).

5:00 P.M.—Fifty-Mile Closed Course Race (Open to Army Pursuit or Attack Ships).

8:00 P.M.—Moving Pictures of the Petroleum Industry, in the auditorium, entitled — The Story of a Rotary-Drilled Oil Well — The Story of a Mexican Oil Gusher — The Story of Gasoline — The Story of Lubrication. Music.

9:00 P.M.—Bombing of Exposition Grounds by Aerial Bombing Squadron, which in turn will be attacked by Little Rock, Arkansas, Anti-Aircraft Battery.

TUESDAY, OCTOBER 8

DIRECTORS OF THE DAY

Ernest Nickols, Chairman; J. M. Egan, H. V. Foster, Henry Greis, P. D. Hayes, B. E. Horrigan, Frank Billingslea, Joe McGraw.

Louisiana Day; Purchasing Agents' Day; Junior Chamber of Commerce Day; Traffic Club Day; Kentucky Day; Geologists Day.

8:00 A.M.—Golf Tournament. First round matches in all flights, 18 holes.

9:30 A.M.—MORNING SESSION — American Petroleum Institute. Mid-Continent District, Division of Development and Production Engineering re-convenes in the auditorium.

DISCUSSION:

"Comparative Operating Costs of Prime Movers for Drilling Wells," C. L. Shirley, Mechanical Engineer, Shell Petroleum Corporation.
"Weighing Wells in the Seminole Area," C. L. Phipps, Petroleum Engineer, Pure Oil Company and A. W. Walker, Petroleum Engineer, Indian Territory Illuminating Oil Company.
"Display and Description of A. P. I. Gages," Spencer Terry.

2:30 P.M.—Airplane Fifty-Mile Closed Course Race (Open to Navy Pursuit Ships).

3:00 P.M.—Fifty-Mile Closed Course Race (Open to Army Observation Ships).

4:00 P.M.—Exhibition Flying by Army and Navy.

8:00 P.M.—Moving Pictures on the Petroleum Industry in the auditorium entitled —Through Oil Lands of Europe and Africa, Germany, France, Spain, Morocco and Algeria — Italy, Hungary, the Danube and Roumania.—Poland, Greece and Egypt. Music.

9:00 P.M.—Bombing of Exposition by Aerial Bombing Squadron, which in turn will be attacked by the Little Rock, Arkansas, Anti-Aircraft Battery.

OTHER MEETINGS DURING THE DAY

The American Association of State Geologists, Dr. Charles N. Gould and A. I. Levorsen in charge.
Dr. Condra in charge of the evening session.
Petroleum Conservation meeting, with W. F. Chisholm, President of the National Petroleum Conservation Service, in charge.

WEDNESDAY, OCTOBER 9

DIRECTORS OF THE DAY

Waite Phillips, Chairman; A. A. Beard, C. P. Dimit, Ray L. Dudley, J. P. Flanagan, A. W. Leonard, O. C. Staples.

Old Timers Day; Rotary International Day; Mid-Continent Oil & Gas Association Day; California Day; Bradford-Titusville and Oil City Day; Optimists Day; Co-operative Day; American Business Club Day.

8:00 A.M.—Golf Tournament, second and third round matches in all flights, 18 holes.

9:30 A.M.—Meeting of Old Timers in auditorium.

12:00 P.M.—Rotary International dinner to Foreign Delegates at Chamber of Commerce.

2:00 P.M.—Presentation of Medals to Old Timers at Exposition Grounds.

3:45 P.M.—Airplane Fifty-Mile Closed Course Race (Civilian Free-for-All).

5:00 P.M.—Exhibition Flying by Army and Navy.

6:30 P.M.—Mid-Continent Oil & Gas Association banquet at Tulsa Club; Homer S. Fox, Foreign Trade Commissioner, United States Department of Commerce, speaker.

8:00 P.M.—Moving Pictures of the Petroleum Industry in the Auditorium, entitled "The Story of Petroleum." Music.

9:00 P.M.—Bombing of Exposition Grounds by Aerial Bombing Squadron, which in turn will be attacked by Little Rock, Arkansas, Anti-Aircraft Battery.

THURSDAY, OCTOBER 10

DIRECTORS OF THE DAY

Robert F. Garland, Chairman; J. H. Brooks, O. T. Dawson, Geo. A. Dye, Walter Gray, D. F. McMahon, Walter Miller.

Safety Day; Independent Producers Day; Cosmopolitan Day; Scientific & Technical Day; Appalachian Field Day; Royalty Day; Scout and Land Men's Day; Bureau of Mines Day; Ada Day.

8:00 A.M.—Golf Tournament Championship matches in all flights, 36 holes unless contestants agree on 18.

(Continued on Next Page)

9:30 A.M.—A meeting of the Independent Producers' Association of America in auditorium; Wirt Franklin, chairman.

1:00 P.M.—Safety Contests, under the auspices of the Mid-Continent Oil & Gas Association, Safety Division; United Bureau of Mines and the National Safety Council on the main drive.

8:00 P.M.—Moving Pictures of the Petroleum Industry, entitled—Story of Petroleum. Music.

9:00 P.M.—Bombing of Exposition Grounds by Aerial Bombing Squadron, which in turn will be attacked by Little Rock, Arkansas, Anti-Aircraft Battery.

Entrance to all events will be through the Exposition gates. Admittance fee to Exposition entitles you to seat in grand stand to witness air program.

FRIDAY, OCTOBER 11

DIRECTORS OF THE DAY

Alf. G. Heggem, Chairman; Clyde Alexander, R. A. Griffith, Warren C. Platt, Ralph B. Pringle, Victor H. Smith.

Babson Day; Chamber of Commerce Day; Marketers' Day; Oklahoma City Day; Oil Creek Day; Welders' Day.

9:30 A.M.—Welding Program, arranged by the American Welding Society. The auditorium. Welding Contests in the afternoon.

12:15 P.M.—Mr. Roger Babson will be guest of Honor and speaker at the Chamber of Commerce. Visitors welcome.

1:00 P.M.—Discussion by Marketers of American Petroleum Institute, Code of Ethics in the auditorium. Mr. Ray R. Irwin of White Eagle Refining Company, Chairman.

H. B. Erhardt of the White Star Refining Company of Detroit, speaker.

8:00 P.M.—Moving Pictures of the Petroleum Industry, entitled—Through Oil Lands of Europe and Africa—Germany, France, Spain, Morocco and Algeria—Italy, Hungary, the Danube and Roumania, Poland, Greece and Egypt.

SATURDAY, OCTOBER 12

DIRECTORS OF THE DAY

W. A. Schleuter, Chairman; R. E. Day, Jacob France; Fred Insull; Clyde Pape.

Indiana Day; Illinois Day; Arkansas Day; New Mexico Day; Wyoming Day; Montana Day.

9:30 A.M.—Exposition Gates Open.

1:30 P.M.—Boy Scouts Contests, Tulsa County Council, under the auspices of Mid-Continent Oil & Gas Association, on the main drive.

10:00 P.M.—Exposition closes.

Contests and demonstrations will be scattered throughout the program during the week and will be announced.

Thirty Teams Will Compete in Annual First Aid Contest

MORE than 30 teams have entered the annual First Aid Meet, sponsored by the safety division of the Mid-Continent Oil & Gas Association, the United State Bureau of Mines and the National Safety Council. The meet will be held October 10, on the grounds of the International Petroleum Exposition. It will be followed by the banquet that evening, when awards will be made.

Teams will represent all divisions of the petroleum industry and will come from a wide area. The teams have been in training for several months, having the assistance of both the Safety Division and representatives of the Bureau of Mines.

There will be an oral examination of all teams entered at 10 o'clock the morning of October 10. The meet will begin at one o'clock that afternoon and continue until judging has been completed. The banquet has been set for seven o'clock. Governor W. J. Holloway of Oklahoma will be on the program and other speakers will be heard.

Don J. Wallace, director of the Safety Division of the Mid-Continent Oil & Gas Association is chairman of the committee that will stage the event. Other members are C. L. Hightower, Texas & Pacific Coal & Oil Company; V. H. Heyslip, Humble Oil & Refining Company; Tracy M. Shaw, Midwest Refining Company; H. N. Blakslee, National Safety Council; C. W. Smith, Standard Oil Company (Indiana); Carl Martin, Phillips Petroleum Company; C. L. Swim, Skelly Oil Company; E. D. Murphey, Mid-Continent Petroleum Corporation; R. L. Bannister, Gypsy Oil Company; H. N. Boggess, Sinclair Oil & Gas Company; J. C. Young, Tidal Oil Company; E. B. Kershner, Empire Oil & Refining Company; C. L. Andrews, Independent Oil & Gas Company; R. L. Dowden, Oklahoma Natural Gas Corporation; Harry Richards, Mines Safety Appliances Company; R. E. Donovan, Standard Oil Company of California; A. J. Sharp, Transcontinental Oil Company; A. L. Burch, Mid-Kansas Oil & Gas Company; H. C. Renz, Atlantic Oil Producing Company; W. R. Cruse, Pure Oil Company; R. J. Lauder, Shell Petroleum Corporation; C. C. Mackay, Carter Oil Company; Ray Miller, Natural Gasoline Association of America; R. B. Walter, Indian Teritory Illuminating Oil Company; C. H. Meyer, Public Service Company of Oklahoma; Don L. Cross, Continental Oil Company; L. E. Cozzens, Oklahoma Pipe Line Company; Jack Manes, Twin State Oil Company; Virgil Fleming, Pierce Petroleum Corporation; C. E. Tillman, Shaffer Oil & Refining Company; Arthur O'Dell, Barnsdall Refineries, Incorporated; W. P. Chisholm, Louisiana State Conservation Department.

This committee also has charge of all contests during the Exposition.

Record Registration For Golf Tournament

Tulsa.—An entry list of 600 is anticipated for the exposition golf tournament, which will be played over the course of the Tulsa country club during the Sixth International Petroleum Exposition and Congress, October 5 to 12. The tournament had 480 entries last year.

Qualifying rounds will be played October 7, 18 holes. Out of this the necessary number of flights will be listed for match play. There will be trophies for both winners and runners up in each flight, as well as the cup for the winner of the tournament.

First round matches, 18 holes, will be played October 8. Second and third flight matches will be played October 9, leaving the championship matches to be played October 10. The final rounds will be 36 holes, unless contestants agree to 18 holes.

All entries should be sent to the Tulsa country club, so drawings can be made for qualifying rounds.

The defending champion is Walter Critchlow of Ardmore, who won in 1928 and also in 1927. Gus Mattson won in 1925 and T. J. Cochran of Wichita Falls in 1924.

The committee on the golf tournament is headed by Frank S. Gray of the Prairie Oil & Gas Company of Tulsa. Other members are F. Lee Kennedy, John M. Risk, A. M. Bowman, Hal C. Moore, A. E. Bradshaw, D. B. Mason and C. F. Camp.

A. P. I. Engineering Department Meeting

The fall meeting of the Mid-Continent district of the American Petroleum Institute, division of development and production engineering will be held October 7 and 8 in connection with the Exposition. The new auditorium at the grounds will house this meeting.

The program for this follows:

October 7, 10 a. m.—Opening address—J. Edgar Pew, Sun Oil Company, Dallas, Texas. "Repressuring Practice in the Mid-Continent," group paper compiled by D. L. Trax, consulting engineer, Gypsy Oil Company, Tulsa, and T. A. Hall, chief engineer, Tidal Oil Company, Tulsa.

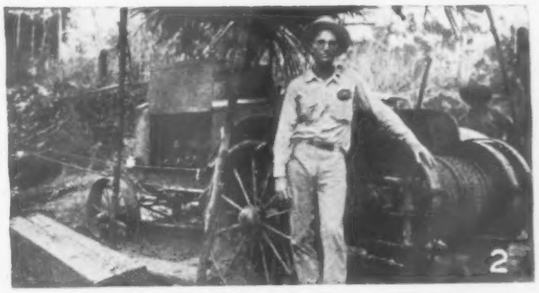
Afternoon Section, 2 p. m.—"Repressuring Practice in the Mid-Continent," discussion, E. O. Bennett, Continental Oil Company and national chairman of the production practice committee, will act as chairman of this session.

October 8, 9:30 a. m.—"Comparative Operating Costs of Prime Movers for Drilling Wells," C. L. Shirley, mechanical engineer, Sheel Petroleum Corporation, Tulsa.

"Weighing Wells in the Seminole Area," C. L. Phipps, petroleum engineer, Pure Oil Company, Seminole, Oklahoma, and A. W. Walker, petroleum engineer, Indian Territory Illuminating Oil Company, Seminole, Oklahoma. "Display and Description of A. P. I. Gages," Spencer B. Terry, Pratt & Whitney Company, Hartford, Connecticut.

WITH OUR FRIENDS IN FOREIGN FIELDS

No. 1.—P. F. Shannon, field superintendent and M. B. Smith, geologist, Tropical Oil Company, El Centro, Colombia



No. 2—C. L. Babin of Shreveport, farm boss for Tropical Oil Company, Infantas field, Colombia

No. 4.—J. Daly of Kosse, Texas, driller on Anglo-Ecuadorean Oilfields' Ancon 126

No. 3.—Jake Martin, foreman of electrical department in charge of generating plants at El Centro and Barranca Bermeja, and M. L. Page, plant engineer at El Centro. Both with Tropical Oil Company in Colombia

No. 5.—Louis Kucine, Imperial Oil Company, Ltd., Toronto, Canada, recently stationed in Colombia, and H. N. Grahlund, chief accountant for Tropical in El Centro, Colombia

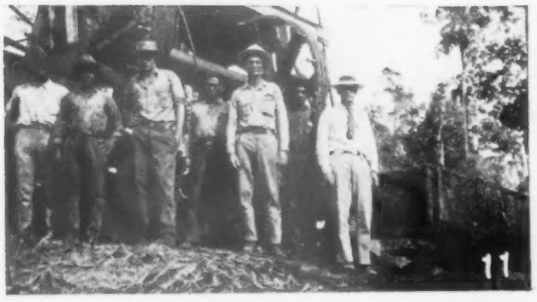
No. 6.—James H. Smith, engineer, El Centro, Colombia

No. 7.—T. Robathan, pipeline and production superintendent, Anglo - Ecuadorean Oilfields, Ltd., Santa Elena, Ecuador

No. 8.—G. G. Goodwin, machine shop superintendent, Tropical Oil Company, El Centro

No. 9.—M. R. Love Miller, pipe line department, Tropical Oil Company, El Centro, Colombia

No. 10.—Five "jefes" of El Centro field in Colombia. Left to right: G. L. Chastain, rig-builder foreman; J. M. Gates, drilling foreman; James E. Hopper, drilling foreman; E. E. Sanders, rigging-up foreman, and S. L. Slaughter, acting drilling superintendent



No. 11.—E. L. Harrigan, clean-out man; C. L. Babin, farm boss, P. F. Shannon, and others. All in Infantas field, Colombia

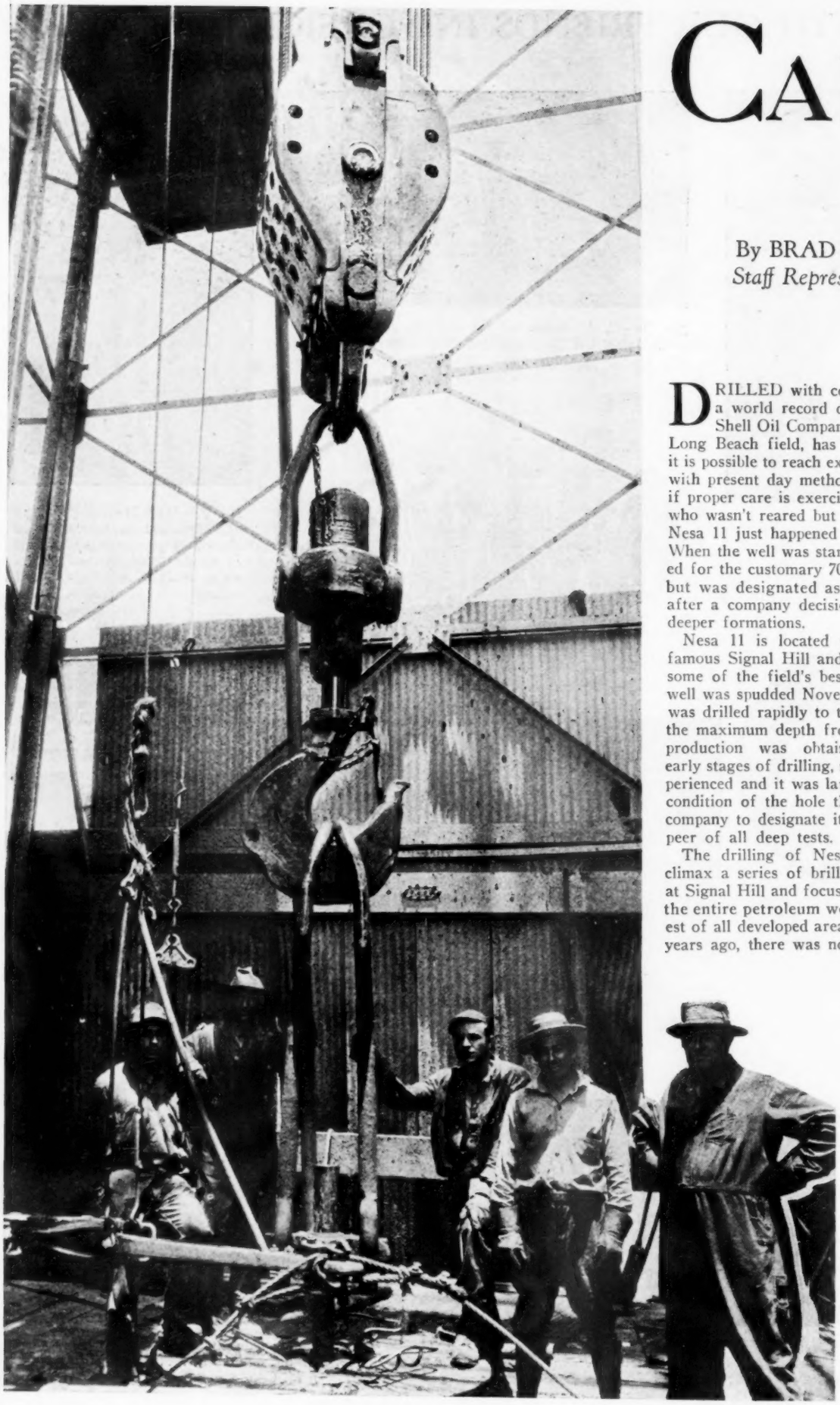
CARE

By BRAD MILLS
Staff Representative

DRILLED with comparative ease to a world record depth of 9280 feet, Shell Oil Company's Nesa 11, in the Long Beach field, has demonstrated that it is possible to reach extraordinary depths with present day methods and equipment, if proper care is exercised. Like the boy who wasn't reared but "just growed up," Nesa 11 just happened to be a deep test. When the well was started, it was intended for the customary 7000-7500-foot level, but was designated as a very deep test after a company decision to explore still deeper formations.

Nesa 11 is located almost on top of famous Signal Hill and is surrounded by some of the field's best producers. The well was spudded November 23, 1928, and was drilled rapidly to the 7600-foot level, the maximum depth from which the best production was obtained. During the early stages of drilling, no trouble was experienced and it was largely the excellent condition of the hole that influenced the company to designate it as ultimately the peer of all deep tests.

The drilling of Nesa 11 brings to a climax a series of brilliant performances at Signal Hill and focuses the attention of the entire petroleum world in this greatest of all developed areas. As late as two years ago, there was not one well in the



Derrick scene, showing heavy equipment used on Nesa 11.

in Drilling Makes Great Depths Easy to Attain

Only two fishing jobs in carrying California well to 9280 feet; cored continuously below 7642 feet

field producing from below 7000 feet. Within the short period of 18 months, depths have increased until the 9000-foot level is no longer a barrier to modern drilling methods. Nesa 11 is expected to pave the way to still greater depths.

Only Two Fishing Jobs

The well was just "another deep test" until the former record of 8532 feet, held by the Texon Oil & Land Company's University 1-B at Santa Rita, Texas, was passed. Immediately following the breaking of the record, Nesa 11 grabbed the spotlight, just as a new champion in any other line replaces the fallen idol, and has held it through several hundred feet of very interesting drilling.

Fishing jobs, the greatest enemy to deep well drilling, played a very unimportant part in the drilling of Nesa 11. After a record depth had been passed, the mental hazard was very great, but caution prevented serious mishaps. At 8368 feet the drill pipe was twisted off and things look pretty gloomy for a short time. A connection was made with the lost drill pipe on the second day, however, and the lost fish recovered. A second twist off of the drill pipe at 9024 feet looked extremely serious, but again on the second day the top of the troublesome fish was screwed onto and removed from the hole in one piece. It was necessary to circulate oil to loosen the lost drill pipe.

A 27-inch hole was started and this size continued to 942 feet. A standard fish tail bit was used. At this point the hole was reduced to 17 inches and carried to 2700 feet without further change. From 2700 feet to 5161 feet, a 10⅝-inch hole was drilled. With a view of completing the well around 7500 feet, a 7⅝-inch hole was drilled from 5161 feet to 7642 feet. At this point the decision to make the well a deep test was reached and coring was used from 7642 feet to bottom.

Casing Record Established

The 27-inch bit averaged 157 feet per day, the 17-inch 146½ feet, the 10⅝-inch 55 feet and the 7⅝-inch 53 feet. No attempt has been made to average the coring record. During the early stages of drilling, progress was uniform and all lines of procedure were carried out with little difficulty.

The casing record stands alone among deep wells, particularly the last string cemented as a final water shutoff. No attention was paid to the size and lengths of the various strings until after the old record had been broken. The ordinary methods were employed in landing and cementing the upper strings, but since the well has gained such prominence, even the ordinary details are of interest.

A string of 18-inch, 88-pound stovepipe was cemented at 941 feet as conductor pipe or surface conductor. At 2699 feet, a string of 11¾-inch, 60-pound casing was cemented over the very top of the oil sand which first produced oil at Signal Hill. A string of 8⅝-inch, 36-pound seamless casing was cemented at 5153 feet and at a point which is sometimes designated as the dividing line between the upper and lower zones.

In the running and cementing of a string of 5¾-inch, 22½-pound, A. P. I. seamless casing at 9144 feet, all records were broken by fully 1000 feet. This remarkable achievement was accomplished with comparative ease, but many problems were overcome before the casing was actually run. Before the cement was pumped into the hole, it required a pump pressure of 1950 pounds to start circulation. It was necessary to compound the company's pumps with those of the cementing company to accomplish this end. The cementing was finished with a pressure of 1700 pounds. A total of 150 sacks of cement was used. The weight of the 5¾-inch string was 205,740 pounds. The condition of the hole was so satisfactory that the entire string was run without a hitch. In cementing casing at such a depth, it is interesting to recall predictions of several years ago that at some future time casing would be run to depths below 5000 feet.

Cored Continuously

The drill pipe record shows about the average combination that is used on ordinary 7500-foot wells. A full 8-inch size

Some of the many outstanding deep wells drilled in California During Recent Years

District—	Company	Well	Depth
Long Beach	Shell Oil Company	Nesa 11	9280
Santa Fe Springs	The Texas Company	Patterson A-10	8500
Compton	California Well Drilling Company	Del Amo 1	8500
Brea-Olinda	C. C. M. Oil Company	Olinda 96	8201
Ventura	Petroleum Securities Company	Willett 5	8025
Fruitvale	Western Gulf Oil Company	KCL-8-B	7725
Athens	Miley Oil Company	Athens 6	7591
Kettleman Hills	Milham Exploration Company	Kennedy 1	7373

was used to a depth of 941 feet, with 6-inch, 25.2-pound having been used to 2700 feet, 5-inch, 22.2-pound to 5162 feet, 4-inch, 16.6-pound to 8240 feet and 3½-inch, 13.3-pound to 9280 feet. The small size used near the bottom of the hole was rumored to be of some special, extremely expensive grade, but such was not the case. Considering the depth of the hole, the two fishing jobs attributable to twisting off of the drill pipe were not unusual.

Coring played an important role in drilling Nesa 11, and it would have been impossible to correctly log the changes in formation by any other method. The hole was cored continuously from 7642 feet to 9280 feet. The recovery between 8500 feet and bottom was not perfect, but satisfactory enough to show all changes in formation. A full 7⅝-inch hole was cored from 7642 feet to 9280, a remarkable achievement within itself.

Near the present bottom of the hole, coring was a tedious task. An average of three cores were taken every two days. Running in to take the core required about five and one-half hours, circulating about four hours, actual taking of the 20-foot core from one to two hours and pulling out about six hours. The crew circulated as high as nine hours before taking a core, but the average was much lower. Some of the cores were very hard and required twice the time of the softer cores.

A careful check was kept on the condition of the mud. An effort was made to hold it to about 70 pounds per cubic foot and to keep it free from sand. All mud was made at Shell Oil Company's mud plant in the field. During the last few hundred feet of drilling, it required fully three hours to get a return on the mud. Circulation was one of the most important factors in drilling.

No Survey or Temperature Reading

The industry eagerly awaited a survey of the hole, but none was ever made. The last 1000 feet would have been particularly interested if plotted on a chart. In running the last string of casing and in pulling in and out while coring, there was little evidence that the hole was dangerously crooked.

No temperatures were taken, but it is believed that they were unusually high below 9000 feet. Even if compiled from the usual scale of thumb, the temperature would have been higher than in any previous well.

The changes of formations below 8000 feet were interesting but offered little contrast to those found in dozens of other deep wells. Streaks of oil sand, shale, barren sand and gray sand were found at various depths. From 9100 feet to bottom promising streaks of oil sand were cored, but it is extremely doubtful whether it will be possible to produce them. It will be a difficult matter to spear these streaks of oil sand at such a depth, due to the uncertainty of landing casing. The last string of casing was run primarily to make a water shutoff. The oil sand carried a distinct odor, but the oil probably was of a lower gravity than the average produced in the upper sands.

The first test of the 5¾-inch casing at 9144 feet showed that the cementing job was unsuccessful. Tubing was run to 7147 feet and the well swabbed, but the fluid which followed up was water with only a trace of oil. Tubing was later run to 3005 feet and the well pumped, but the results were unsatisfactory. A final test was made by placing the well on a compressor, but the flow was nearly all water. The 5¾-inch casing has been recemented at 9144 feet.

In drilling Nesa 11, even the last 1000 feet of hole, Shell Oil Company used as few and as simple tools and equipment as possible. Care was substituted for unproven devices, although everything that is ordinarily used on a deep rotary test was used. Nearly everything was standard equipment and little special material was used. Heavy or high pressure fittings and equipment were necessary but little was used which is not customary on shallower tests.

A 122-foot standard steel derrick was used from beginning to end. The crown block was a double deck seven-sheave regulation type and carried the weight without apparent strain, although it had been used on several other wells. The crown block was a standard four-sheave, 62-inch type and had previously served several wells. One 12 x 12 twin cylinder engine was used and proved adequate for such a phenomenal depth. A battery of four 70-horsepower boilers was used, with fire going under three and one constantly held in reserve. Draw works and rotary table were of standard weight and design. Two splash pumps were used, one a 12 x 6¾ x 14 size and another a 14 x 7¼ x14 type. These pumps had seen service on other wells. A weight indicator was used and proved very useful in recording the stress and strain. Weldless elevators of the Shell Oil Company's own design were used.

Before coring was started at 7642 feet, drilling crews came and went as on any well in a "transient" field. After a decision was reached to make the well a deep test, however, hardly a change was made in the personnel of the crews. The regulation driller and four men made up the crew, which was changed every eight hours. The regular crews took a great interest and pride in the well, particularly after it passed the former record depth.

Although Nesa 11 is not yet an oil well and may never be one, it has demonstrated the feasibility of opening up sands at depths formerly thought out of reason. It is a tribute to drilling technique, and though it may soon lose its title as the world's deepest hole, it now stands alone as the real champion.

E. J. Miley's Athens 6 in the Athens-Rosecrans field, formerly the deepest oil producer in the world. Total depth is 7591 feet.

Left to right: Front row, R. H. Connor, R. H. Cummings, A. D. Nay, D. K. Peters. Rear row: K. M. East, driller, M. E. Thompson.

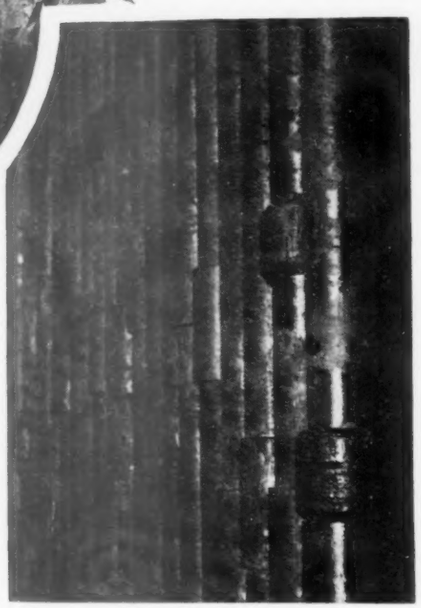
Left to right: F. B. Wilfert, T. B. Ladd, S. C. Bryan, J. C. Wiman and E. T. Walker, driller.

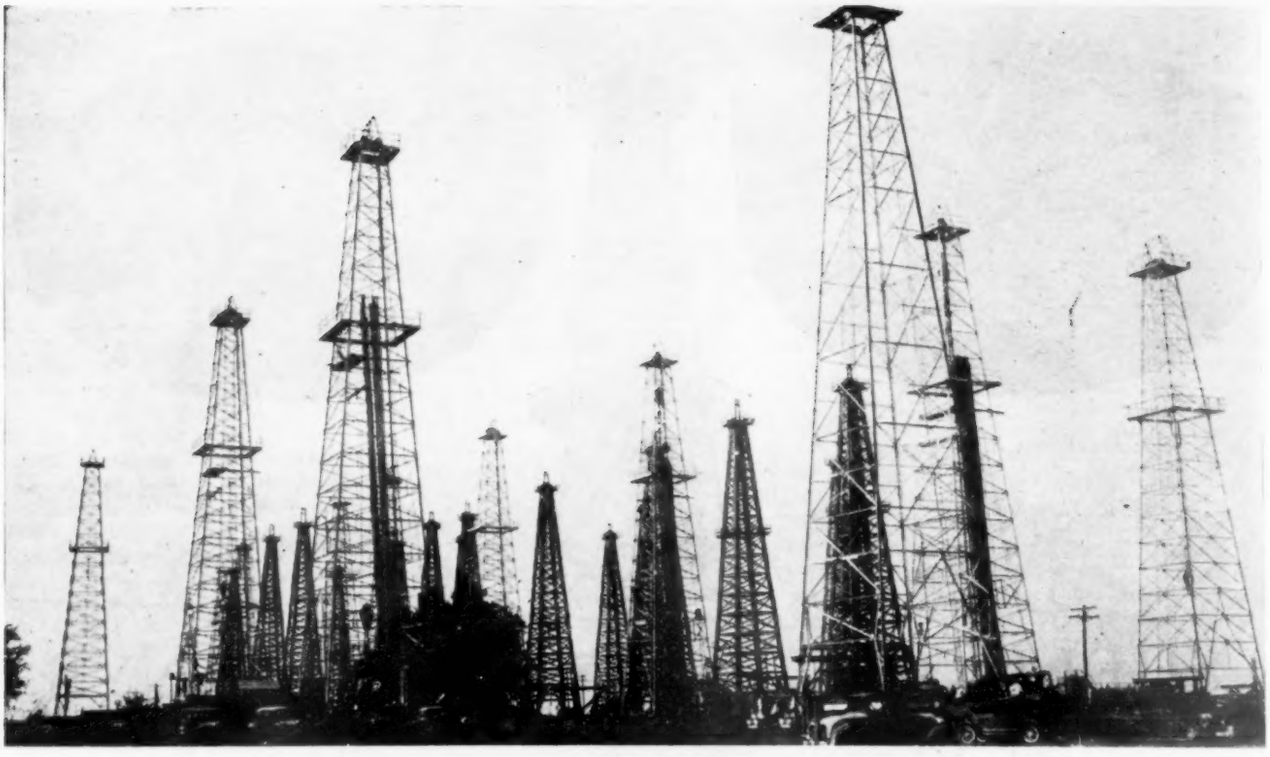
SHELL OIL COMPANY'S NESA ELEVEN

Below—This core bit took core at 9100 feet.

Left to right: C. C. Harris, C. A. Middlebu g, R. D. Parker, Roy Hanson, F. A. Jennings and W. C. Bailey, driller.

Below — Drill pipe used in the well.





Group of wells, all more than 5000 feet deep, at Barbers Hill

Deep Drilling *Revives Old Fields in* Gulf Coast

By JACK LOGAN
Staff Representative

WHEN Gulf Production Company in 1914 drilled to 4718 feet in Gladys City 49 at Spindle Top, it furnished Gulf Coast oil producers an absorbing topic of discussion for weeks. An outstanding record had been achieved in rotary drilling. Nowhere before in the Gulf Coast—and probably nowhere in the world—had a rotary drill reached such a great depth; and there were very few which had gone below 3400 feet.

It was a long time before that record was broken, and even as much as a decade later there had been very few wells drilled below 5000 feet in the Gulf Coast. It was not until October, 1925, that the depth record for the area was set below 6000 feet. But there was yet no commercial production as deep as 5000 feet, and consequently, any test deeper than 5000 feet was still uncommon.

In 1926, however, prolific production was established at depths greater than 5000 feet in Spindle Top field, and encouraged by the success that was obtained, operators there began drilling farther away from the dome, hoping for even deeper production. Over a dozen holes eventually were drilled below 6000 feet, and when Yount-Lee Oil Company's Gladys 6 was abandoned at 6765 feet on April 7, 1927, a new depth record was established for the Gulf Coast. A few fair producers were completed about that time from 5300 to 5500 feet, and one well, Yount-Lee Oil Company's Fee 27, swabbed 1650 barrels fluid, including 1488 barrels of 27 gravity oil, on January 25, 1928, from 5879 feet. But most of the deep commercial production at Spindle Top was from sands at 4900 to 5100 feet. By the end of the first half of 1928 a total of 93 wells had been completed at Spindle Top below 4900 feet, and of those, 54 were producers, with a combined initial production of 92,671 barrels. Spindle Top still leads among Coastal fields in the number of wells drilled below 5000 feet, the total having exceeded 100.

Louisiana Deep Drilling

About the time that mile-deep production was ushered in at Spindle Top, deep drilling was also introduced into two South Louisiana fields, Lockport and Sweet Lake, and before the close of 1926 production had been obtained below 5000 feet in each of the fields. When Pure Oil Company completed Sweet Lake 3 at Sweet Lake as a producer at 5897 feet on October 23, 1926, it was the deepest producing well in the Gulf Coast; and that record was not broken until the same company, in the same field, completed Sweet Lake 4 for 2200 barrels at 5924 feet, on February 18, 1928. Sweet Lake 4 then held the Gulf Coast record for deep production for nearly a year and a half—until the present record of 7292 feet was established by the Yount-Lee Oil Company's Houssiere-Latrielle 6, at Evangeline, Louisiana, on June 3, 1929.

The Gulf Coast record for greatest depth ever reached, established at 6765 feet, on April 7, 1927, by Yount-Lee Oil Company's Gladys 6, at Spindle Top, was not exceeded until Humble Oil & Refining Company abandoned Simms-Smith 74 at Goose Creek, at 6967 feet, in February, 1929. The record then went on June 3, 1929, to Yount-Lee Oil Company's Houssiere-Latrielle 6, at Evangeline, a producer, as well as the deepest hole on the Gulf Coast, at 7292 feet. The record for depth is now held by Yount-Lee Oil Company's Chambers County Agricultural Association 4, at Barbers Hill, a non-producer at 8150 feet. More information about that 8150-foot test will be given presently.

Spindle Top No Criterion

Although 5000-foot wells were profitable at Spindle Top, there was no certainty of success in those at Lockport and Sweet Lake, and as yet the Lockport and Sweet Lake deep wells have not justified

their expense. Out of 18 wells at Lockport drilled below 5000 feet, there have been only seven producers, with initial production ranging from 175 to 1500 barrels, and with a combined initial of only 5275 barrels. In the whole Sweet Lake field seven out of eight wells drilled have gone below 5000 feet, and all but one of the seven 5000-foot wells have produced at least some oil. Two that came in producers are being worked over. Four were producers over fairly long periods. The best of the four was Sweet Lake 5, which has produced over one-half million barrels of crude.

The pioneering work in deep drilling having been done at Spindle Top, Sweet Lake and Lockport, establishing profitable production below 5000 feet at least at Spindle Top, greater depths came to be attained in numerous other Gulf Coast areas, particularly during and after the latter half of 1927. During 1928 wells between 5000 and 6000 feet became more or less common, and during 1929 numerous tests have been drilled below 6000 feet. By now producing wells have been completed below 5000 feet in 14 fields in the Gulf Coast: Spindle Top, Lockport, Sweet Lake, Pierce Junction, Allen Dome, Fannett, Hull, Barbers Hill, Sulphur, High Island, Evangeline, Humble, Orange and Refugio.

Four Successful "Deep" Fields

Aside from Spindle Top, however, there are as yet only three outstanding examples of successful development of commercial production below 5000 feet in the Gulf Coast region: Barbers Hill, Humble and Pierce Junction. Prospecting began on Barbers Hill dome in 1902; the first production was obtained in 1918; and by 1928 the field had produced barely a million barrels, with the deepest production from around 4100 feet. In October, 1928, Mills Bennett Production Company discovered deep production at 5231-72 feet in Smith 1, a 4000-barrel well, and since then over 35 producers have been completed at Barbers Hill around that depth with uninterrupted success. The productive zone has been fairly well established around almost one-half of the periphery of the dome. Numerous wells are now drilling below 5000 feet, within a short distance of the producing sands. From a little over 1000 barrels daily, the production of the field has risen, through the development of deep sands, to nearly 25,000 barrels daily, placing Barbers Hill practically on a par in daily production with Spindle Top, the present leading Coastal field.

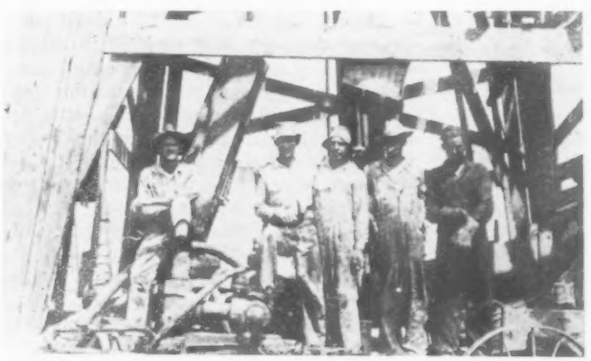
The first production below 5000 feet at Humble was obtained on the southeast flank of the dome when South Texas Petroleum Company (Cullen & West), on January 4, 1929, completed Morris 1 for 2500 barrels of 45.3 gravity crude at 5347 feet. That well originally produced 22 gravity crude at 3041 feet, and was deepened. As a result of the discovery of this deep production, 10 wells have been completed below 5000 feet along that section of the dome, including two dry holes and eight producers with a combined initial production of 22,000 barrels, or an average of nearly 3000 barrels each. In addition, seven large producers have been completed at depths only slightly less than 5000 feet, finding the same sands a little nearer the surface. Approximately 15 rigs are active at Humble with the deep sands as the objective, and there are two tests among them drilling below 5000 feet.

Yellow pine derrick, 117 feet high, on Yount-Lee Oil Company's 8150 foot deep test at Barbers Hill

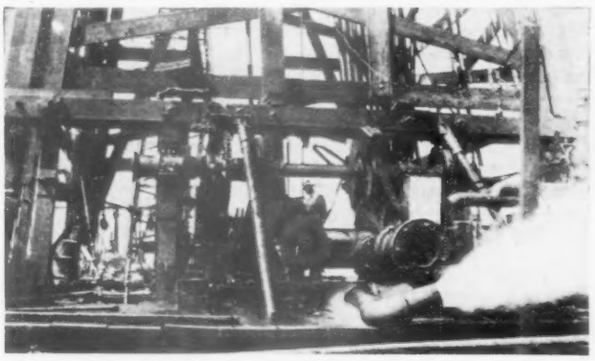
Pure Oil Company's Sweet Lake 4 at Sweet Lake, Louisiana. This well is 5924 feet deep and until recently was the deepest producer in the Gulf Coast. It is in the middle of a lake where the water is eight feet deep

"Much Abandoned" Lease Is Valuable

Prior to the discovery of the deep sands at the beginning of this year, the deepest production at Humble was around 3800 feet, and the daily yield of the field had declined to about 2000 barrels, as compared with approximately 8000 barrels daily now. Humble is among the oldest fields of the Gulf Coast, as well as the second most productive, with over 100,000,000 barrels total recovery to its credit, and it was looked upon more or less as an exhausted field until the new prolific



Day crew on Yount-Lee Oil Company's Chambers County Agricultural Association 4 at Barbers Hill—deepest Gulf Coast well. Left to right—S. B. Strickland, driller; E. M. McMurray, C. D. Kirk, L. T. Joiner and Jesse Gainey



Coming out with drill stem in Yount-Lee Oil Company's Chambers County Agricultural Association 4 at Barbers Hill. Casing was set in this well at 8150 feet, a record for the Gulf Coast. Drilling required a little more than five months

sands were opened through deep drilling. It is interesting to note, in connection with the opening of the Humble field deep pay, that on the 100-acre tract on which Cullen & West completed Morris 1 as the discovery deep well, a total of 12 operators had previously drilled, eventually giving up the lease. Numerous wells had been completed on the tract, including some below 3000 feet deep, but it remained for Cullen & West to discover the deep, high gravity crude in 1929.

Deep wells at Sweet Lake, Louisiana

Over a score of wells have been drilled below 5000 feet at Pierce Junction, and a dozen have been completed below that depth as producers.

Allen Dome and Fannett, both discovered by geophysical methods, have not yet been developed into important fields, although producing wells have been completed around both domes. The production at Allen Dome ranged from 5100 to 5500 feet deep, but the wells have been too small to warrant drilling. Several wells have come in at Fannett from depths greater than 5000 feet with large initial production, but they have not continued to produce satisfactorily. Each field, however, has had only a few deep tests.

Miscellaneous Deep Coastal Drilling

During 1927, 1928 and 1929, Orange field was the scene of over a score of tests below 5000 feet, but only a few wells were completed as producers around that depth. Deep drilling has been limited at Hull, and only one producer has been completed there below 5000 feet. High Island also has had little deep drilling and only one producer has been finished below 5000 feet. Several deep tests have been drilled at Sulphur during the past year, including some below 6000 feet, but a 5700-foot well is the only producer completed below 5000 feet. The 7292-foot well of the Yount-Lee Oil Company at Evangeline is the only producer there more than 5000 feet deep, but there have been only a few deep tests there, and the fact that the Yount-Lee producer came in for a high initial production and has continued to hold up as a large well makes the prospects for further success in deep drilling in that field particularly bright. Refugio is the latest addition to the list of fields with production below 5000 feet, Mission Drilling Company's O'Brien 1 there having come in September 26, 1929, at 5525 feet, flowing 100 barrels of crude daily with a lot of gas.

Although the 14 fields named above are the only ones where production has been developed below 5000 feet, there are numerous others where unsuccessful tests have been drilled below that depth. Wildcat wells below 5000 feet have also become common during the past year or so in the Gulf Coast country, particularly in testing out prospects found by seismograph and torsion balance.

Deeper Drilling Brings New Equipment

Deeper drilling, and as a consequence increased production, has been made possible in the Gulf Coast only after making many improvements and changes in equipment, and after gaining the experience needed to overcome various obstacles. Heavier and stronger rigs and pumps, larger size casing, and higher derricks have come into use, and many improvements, such as casing protectors, weight indicators, and so on, have been developed. During the past few months the Gulf Coast operators, like those in most other fields, have given much attention to straight hole drilling, using acid bottle or mechanical tests to check up on the deviation of the well from the vertical. Drilling muds have also come in for considerable attention during the past few months on the part of Gulf Coast operators, and at least one major producing company is doing extensive experimentation with muds.

The outstanding problem at present confronting the Coastal operator in so far as deep drilling is that of controlling heaving and sticky shales. Heaving shale in

(Continued on page 234)

Coast's Deepest Test Drilled Without Single Accident

YOUNT-LEE OIL COMPANY'S Chambers County Agricultural Association 4 at Barbers Hill, deepest test ever drilled on the Texas-Louisiana Gulf Coast, was started April 7, 1929, and reached its final depth, 8150 feet, on September 11, 1929. Total drilling time was 158 days, or only a few days over five months.

The whole job was completed without a twist-off, junk in the hole, or mechanical trouble of any kind, and without an accident to those who drilled the well.

No survey was made of the hole to determine how straight it was, but it was believed to be reasonably straight, for there was very little wear on the collars of the drill pipe, and with the full string of drill pipe in the hole one man alone could turn it with tongs.

The test encountered heaving shale at 8000 feet, and was carried 150 feet into that formation before it was decided to cease drilling. By setting casing just above the shale the hole could have been drilled considerably deeper without difficulty, it was believed, but it was not considered advisable to do so. The drill had gone through several fair oil showings higher up, and it was decided to come back up and to set screen around 5900 feet, just below the casing already in the hole. When the screen was set, however, the well flowed salt water. The well is located on the south flank of the dome, nearly 100 feet south of the nearest production.

Ten-inch casing was set at 629 feet, and using a float valve, seven-inch casing (7⅝-inch o.d.) was set and cemented at 5840 feet. Three-inch drill pipe, 13.30 pounds to the foot, was used in drilling the well. When the ultimate depth was reached, there was consequently a total weight of approximately 109,000 pounds in the string of drill pipe alone, and adding the weight of the Kelly joint, tool joints and so on, the total weight was in excess of 115,000 pounds. National seamless pipe was used.

The derrick, 117 feet high, was made of long leaf yellow pine. One-inch drill cable was used throughout the job. In drilling to 4300 feet four lines were used, and the test was then finished with six lines.

A 72-inch Beaumont Iron Works traveling block was used, and also a crown block of the same make. Other equipment included Model 67 Beaumont Iron Works water-cooled draw works; a 17-inch Oil Well Junior rotary; 11 x 11 Oil Well Supply Company engine; and 12 x 6¾ x 14 Gardner Denver pumps. Steam from a field boiler station was used.

The equipment mentioned above is more or less standard equipment of the Yount-Lee Oil Company, which, incidentally, has been and continues to be a leader in deep well drilling in the Gulf Coast. All of the drillers who worked on the deep well at Barbers Hill had previously had experience on deep wells at Spindle Top and elsewhere.

Three crews working eight hours each were employed on the 8150-foot well at Barbers Hill. The daylight shift was composed of S. B. Strickland, driller, Jesse Gainey, derrick man, L. T. Joiner, C. D. Kirk and E. M. McMurray. The evening shift included W. M. Logsden, driller, E. L. Bell, derrick man, T. H. Theriot, F. G. Halst and Bud Margrider. The "graveyard" shift was composed of Col. Ruyle, driller, Johnnie Wilkerson, derrick man, D. Peayton, J. P. Ackel and Otto Chissher.

Gulf and Lago wells, Ambrosio field, Maracaibo Lake

Time *for* Deep Drilling *Has Not Arrived in* South America

By ROY E. LEIGH
Special Foreign Representative

THE day of deep drilling has not yet arrived in South American oil fields, nor is it likely to come until the prolific shallow sands have yielded up their flush oil and the flood of overproduction has subsided in the United States. It is not in order to open up new sources while, for example, the Maracaibo fields are capable of producing more oil than can be shipped across the bars which forbid entrance of ocean-going tankers; nor is it time to drill wells costing from $100,000 to $500,000 each when their output is worth less than a dollar a barrel.

The term "deep drilling," being purely relative, has a different meaning when employed by South American operators. Practically all of their drilling having, until now, been confined to shallow depths, they are wont to speak of any depth below 3000 feet as "deep;" whereas, nowadays in the United States, no well less than 5000 feet in depth would be so described.

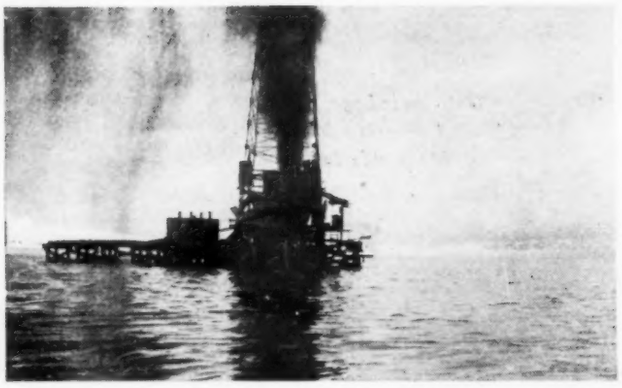
Only a few of the larger companies have seen fit to drill deep tests, their purpose being but to map out their future reserves, with no plan of immediate exploitation.

With the exception of those in the Lagunillas field, practically all of the wells which are accounting for Maracaibo's present average of 380,000 barrels per day are of less than 3000 feet in depth. It is true that the Richmond Petroleum Company's new production at Urumaca is from a depth of 3400 to 3500 feet, and that wells of from 5000 to 6000 feet may be required in order to develop the Creole Petroleum Company's acreage on the same structure; but wells in the other fields are of lesser average depth, as follows:

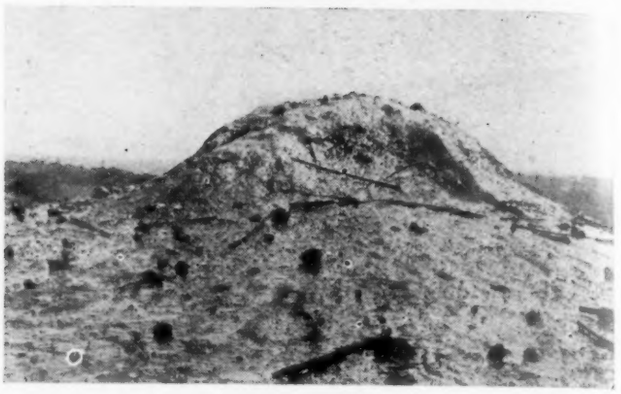
Drilling Depths	Feet
La Rosa-Ambrosio	2,200-2,600
Lagunillas	3,200 ft. (North) to 4,200 ft (South)
Mene Grande	2,600-4,250
El Mene	1,100
Totumo (Rio Palmer)	1,250-3,000
El Cubo (Colon)	875-3,800
Urumaco	3,400-3,500
Hombre Pintado	2,000-3,000
Quirequire (Eastern Venezuela)	1,500-3,000
Guanoco (Eastern Venezuela)	500-1,500
El Mene del Salto	1,500-2,000

Recent extensions have made it apparent that the La Rosa, Ambrosio, Punta Benitez, and Lagunillas fields may ultimately be joined up in one vast productive area at least 25 miles long, north and south, and perhaps equally wide, east and west. It is likely that some really deep drilling will be necessary in order to develop the ultimate flanks of this immense structure. In fact, drilling depths are increasing as development extends southward at Lagunillas. Wells in the northern part of the field are only about 3,200 feet deep; but the structure slopes to the south, and wells drilled recently at the southern limit of the proven area have found a greater and richer sand thickness at around 4300 feet. For the time being, further development in this direction is prohibited by the restriction agreement now in effect between operators.

Operators are hopeful that other oil-bearing sands will be found to underlie those now producing in these fields. The Venezuela Gulf Oil Company is said to be making plans for drilling to 10,000 feet, or to the ultimate capacity of the heaviest modern rotary equipment, at some point on the eastern shore of Maracaibo Lake. If such a test is drilled, as it inevitably



Gas blowout from Lago Petroleum Company's Tia Juana 1, about midway between the La Rosa and Lagunillas fields, Maracaibo district



Seepages of oil and asphalt which led to discovery of the Mene Grande oil field on the eastern shore of Maracaibo Lake

will be, it may result in the discovery of one or more deep sands in the La Rosa and Ambrosio fields.

The Misoa-Trujillo formation, underlying the Pauji shale at Mene Grande, is probably the most important known source of deep sand production in Venezuela. The presence of this deep oil-bearing sand-rock was definitely proven in January of last year by the completion of well No. 47, which produces lighter oil (27.4° A. P. I.) of higher gasoline content (18 per cent topping plant yield) than that found in the sands of the Maracaibo Series, which is of about 19° A. P. I. gravity and yields only 9 per cent. of gasoline. So far, only four wells have been drilled into this formation, which is being left as a reserve for the future. These wells are producing around 4750 barrels of oil per day.

The heavy oil production at Mene Grande is from the Maracaibo Series, in which wells are finished at an average depth of 2600 to 3000 feet. between the Maracaibo Series and the newly-found Misoa-Trujillo formation lies the Pauji shale which is only about 200 feet thick on the crest of the structure but which increases to a thickness of from 3000 to 4000 feet on its flanks. Thus, when the Caribbean Petroleum Company (Shell) sees fit to develop this reservoir, it will be necessary to drill to depths of from 3000 to 7000 feet, or more.

The Maracaibo Series presents no unusual difficulties in drilling, as its upper section consists of comparatively soft unconsolidated clays, and its lower part of sands and shales. Using fish-tail bits, drillers cut around 50 feet of the Pauji shale in each eight-hour tour. Upon penetrating the Misoa-Trujillo formation very hard shale and hard quartzitic sand rocks are encountered, in which rock bits cut only about 4½ feet with each set of cones or cutters. The entire thickness of the Misoa-Trujillo formation has not yet been penetrated; so that the maximum depth to which it may be necessary to drill in order to drain its oil cannot yet be forecast.

One of the most notable drilling operations in the history of Trinidid was completed in February of this year by a crew of California drillers working under the supervision of F. J. Shaver, of Los Angeles, who served as field manager for United British Oilfields of Trinidad (Shell) during a two-year period ending in April, last. This operation which consisted of the successful deepening of well No. 135 in the Parrylands fields, near Point Fortin, is of historic importance as the first well to be cored through the high-pressure sands for which Trinidad is famous and finished without the use of the oil-string assembly by which wells formerly were brought in through the drill stem to avoid the grave dangers which attended the pulling of drill pipe to set liner. In this instance, having some 2000 feet of hole above the high-pressure sand, the Californians were able to introduce a column of mud of sufficient weight to hold down the maximum pressure (2000 pounds per square inch) which might be expected. Barite was used as a weighting agent, and a mud weighing 140 pounds per cubic foot was achieved.

Over 750 feet of hole was cored continuously and successfully. A very prolific oil sand was found at 2790 to 2843 feet, and drilling was discontinued in shale at the total depth of 2853 feet. A combination string of 8⅝-inch casing with 63 feet of screen on the bottom was cemented through perforations at the top of the oil sand, 2790 feet; and the well was brought in with an initial production of 3300 barrels per day through one ⅞-inch bean. It flowed over 100,000 barrels of 26° gravity oil during the first two months of its life, and thereby completely changed the outlook not only of the Parrylands field but of other fields nearby. It appears that Shell's Trinidad subsidiary owns 600 or 700 acres over which this deep sand may be productive.

Apex (Trinidad) Oilfields has been the pioneer in deep drilling in Trinidad, having found oil at depths of 4000 and 5000 feet in two wells drilled at San Francique, near Fyzabad. The presence of water detracted from the commercial value of these wells, although not so much from the importance of the discovery of potential new sources of production.

Fire on British Controlled Oilfields' Crown Lands property, Palo Seco field, illustrating the dangers of high pressure gas encountered in Trinidad. Two dozen people have lost their lives in catastrophes of this nature during the last five years

MODERN METHODS AND EQUIPMENT

Lower Costs on

World's Deepest Producer

By H. H. KING
Staff Representative

HAVING the deepest oil and gas producer in the world to its credit, the Big Lake field, West Texas district, is the first area to enjoy a sizeable drilling campaign to the record producing horizon. The discovery well of the 8500-23-foot oil and gas horizon in this field has had a stimulating effect on deeper drilling in general through the establishment of commercial production at a level heretofore unequaled, while it has further added to its laurels by consistently registering gains in oil and gas production since blowing in as a producer 10 months ago.

Group One Oil Corporation, subsidiary of the Texon Oil & Land Company of Delaware, which is now controlled by the Continental Oil Company, gave the oil industry a new goal to shoot at late last November for deep production when its University 1-B added a third productive horizon to the Big Lake field at the 8500-foot level. This well began showing production in the lower horizon November 23, and made its first head of oil estimated at 7½ barrels, November 28 at 8516 feet in gray sandy-lime where an increase in gas was noted. Production increased as drilling progressed, and on December 4 further penetration of the formation was halted by pressure being too great to run tools to the bottom at 8523 feet, but the well made 402½ barrels of 52.9 degree gravity (corrected) oil and seven million cubic feet of wet gas during the 24-hour period ending 7 a. m., December 5. Increases in both oil and gas production have been steady since operations were halted, and all additional work on the well has been devoted to keeping it under control. The gravity of the oil soon jumped to above 56 (corrected), and has remained at this level. The total yield of crude from the deep horizon from December 1, 1928, to October 1, is 672,134 barrels of oil and actual gauges on the gas flow since March 16 to October 1, aggregates 4,816,813,000 cubic feet. Approximately 1,700,000,000 cubic feet of gas was produced during the first 3½ months, thus making a total of about 6½ billion feet.

Two Company Field

The Big Lake field is in possession of two companies, and since the Big Lake Oil Company has the west offset location to the deep producer an offset became necessary. However, Levi Smith, president, has displayed his faith in the deep production extending over other parts of the field by having the Big Lake Oil Company start work on four tests late in December and early in January, including the offset. This four well campaign is the biggest deep well project ever launched by a company, and is progressing rapidly. The owners of the deep producer have elected to postpone further development of the 8500-foot horizon pending the completion of one or more of the Big Lake Oil Company's four tests, and if the latter are successful a direct offset will be required of University 2-C.

The Big Lake Oil Company is taking advantage of all modern equipment, methods and practices to safeguard the holes now approaching the expected oil and gas horizon, and has successfully passed the last water horizon, which is encountered around the 3400-foot level, in all four tests. An exhaustive study of deep well drilling and selection of equipment was made by E. C. Stearns, manager of production, prior to starting the campaign. Two of the tests are being drilled with company tools, while the other pair are being drilled by the Richmond Drilling Company and B. L. Agnew & Sons on a cost plus basis contract.

8300-Foot Test Nears Completion

Big Lake Oil Company's University 131, which is located about one-half mile southwest of the deep producer, is slated to be the first completed, having reached a depth of 8301 feet late last week. This test was originally completed in January, 1928, as a 270-barrel producer in the regular lime at 2898-2909 feet, and started drilling deeper late in December. A string of 8¼-inch casing was lowered from 2720 to 3524 feet, followed by a string of 6⅝-inch pipe at 6251 feet. The last string of pipe, consisting of 7806 feet of 5 3/16-inch, 18 pound casing, was cemented with 125 sacks of cement because of cavings. The other strings of casing were also cemented.

University 151 was spudded August 1, 1928, to go to the regular lime horizon, but was converted into a deep test late in the year. Considerable trouble and delay was experienced with 10-inch freezing at the 2500-foot level on this test, resulting in it being cemented at 2580 feet. Trouble also developed with the 8¼-inch pipe after originally landing same at 2960 feet, but this was overcome after a few weeks delay, and late last week the test was

HOLDING the record for depth that oil and gas production is found in commercial quantities, the Group One Oil Corporation's University 1-B, Big Lake field, Texas, is making an unusual performance by its steady gains in oil and gas output from the 8500-8523-foot horizon. The oil is averaging above 56 degree gravity (corrected), while the gas has about 1190 B. T. U.'s per 1000 feet, and .07 per cent sulphur content. Bi-monthly production of this well is listed below:

	Total Bbls.	Total Gas
December 1-15	6,821	.....
December 16-31	18,478	.....
January 1-15	21,916	.....
January 16-31	26,781	.....
February 1-15	27,674	.....
February 16-28	25,877	.....
March 1-15	31,527	.....
March 16-31	35,525	349,351,000
April 1-15	34,331	333,203,000
April 16-30	35,891	346,286,000
May 1-15	37,608	352,100,000
May 16-31	41,009	377,923,000
June 1-15	38,947	355,956,000
June 16-30	39,529	359,997,000
July 1-15	39,957	374,401,000
July 16-31	43,183	401,793,000
August 1-15	40,662	380,473,000
August 16-31	43,491	413,072,000
September 1-15	41,392	386,908,000
September 16-30	41,535	385,350,000
Totals	672,134	*4,816,813,000

*Gas production first 3½ months not available, but estimated at 1,700,000,000 cubic feet

drilling ahead with cable tools below the 7100-foot level.

University 1-C, a west offset to the deep producer, was started last January as a deep test, using company tools, and when completed is scheduled to eclipse all records east of the Rocky Mountains in setting casing. This test was drilling below the 5830-foot level late last week in sandy-lime and slate. This test is scheduled to be cased with 6 5/8-inch pipe, 28 pound weight, at the 8400-foot level, and including the other five larger strings will have approximately 1,138,160 pounds of casing in the hole. The first pipe used in this hole consisted of 560 feet of 22-inch casing.

Application of the Rotary

One rotary outfit was purchased by the Big Lake Oil Company to make a deep test on its University 2-C location, using a motor driven Oil Well rotary rig. This test was spudded with cable tools to a depth of 250 feet last March, and after setting 15½-inch conductor at this level, the rotary crew began work March 24. A string of 10¾-inch casing was cemented at 2896 feet. The rotary failed to keep pace with cable tools in lime, shale and sandy-lime formations between 3000 and 5475 feet, and at the latter depth operations were halted to set a string of 7-inch A. P. I. pipe on bottom. Drilling is to be resumed this week with cable tools, but the rotary will again be used to core the 8500-foot horizon and complete. The rotary was making only 50 to 60 feet of new hole daily, while cable tools in the same formation average 100 to 125 feet daily.

In order to obtain cores and properly penetrate the 8500-foot oil and gas horizon, the Big Lake Oil Company plans to install a rotary to drill in on each of its four tests, providing the bottom of the hole will permit the production of the drill stem. This procedure is expected to keep the heavy gas flow under control and throw some light on the identification of the deep producing horizon, which remains uncertain. Carl Cromwell, superintendent of the Group One Oil Corporation, and his drilling crew never had a chance to properly complete the discovery well, as the heavy gas flow prevented the lowering of tools in the 5-3/15-inch casing, which was cemented at 6184 feet, or 2339 feet off bottom. The last two feet of hole penetrated resulted in a substantial gain in oil production. It is assumed that the well has since drilled itself deeper, resulting in the steady production gains.

High Pressure Fittings

The unavoidable waste of natural gas by the discovery well is to be curbed, if possible, by the Big Lake Company in its expected completions, as fittings, testing 4000 pounds pressure, are to be installed on each test. The discovery well caught its owners off gaurd and ordinary fittings from warehouse stock had to be drafted into service, while the large amount of open hole and condition of the casing offered too great a hazard to replace the fittings, or apply more than 190 pounds back pressure.

The deep producer gauged 2811 barrels of clean oil and 25,602,000 cubic feet of wet gas during the 24 hour period ending seven a. m., September 28, with 190 pounds back pressure, and has had from 175 to 190 pounds back pressure applied since about March 1 in order to help curb the gas waste. This gas is being run through the absorption natural gasoline plant of the Signal Gasoline Company of Texas, with a yield of about three-quarters of a gallon per thousand cubic feet. The residue is wasted, except for a small plant and field consumption. The gas is credited with 1190 B. t. u. per thousand, and .07 per cent sulphur. Eventually this residue gas will be utilized in repressuring the 2400 and 3000-foot horizons throughout the field.

Drilling Costs

The cost of drilling and completing the Big Lake Oil Company's four deep tests is expected to average between $150,000 and $175,000, while the cost of drilling the discovery well was $141,500.54. The latter figure does not include tapered wire lines used, as these were furnished by manufacturers. The discovery well required about 870 working days to drill, while actual drilling consumed only 394 days. The labor cost was estimated at $51,040.86, or $6.00 per foot, and the other expenses totalled $90,459.68, or $10.60 per foot, thus making $16.60 per foot for the completed well, according to statistics compiled by Waldo Williams, who was chief geologist for the Group One Oil Corporation.

The drilling and successful completion of the record depth producer in the Big Lake field was made possible by Frank T. Pickrell, who was then vice-president and active manager of the Group One Oil Corporation and other Texon Interests. The last few months of work on the deep test was conducted in the face of protests from the majority of the officers and leading stockholders of the company because of the project's being considered hopeless. However, the result vindicated Pickrell for the stand taken, and later controlling stock interest in the various Texon Interests were sold to the Continental Oil Company for about $10,000,000.

Few Deep Tests Have Been Drilled in Interior Texas

FORT WORTH, Texas.—Comparatively few tests that fulfill the present day qualification for a deep hole have been drilled in the proven fields and wildcat areas comprising the interior of Texas. The western portion of the state, with the deepest oil and gas producer in the world to its credit, is the center of deep well drilling activities, and enjoys a somewhat reasonable drilling expense because of the absence of troublesome water horizons. The discovery of a prolific oil and gas horizon at the 8500-23 foot level late last November by Group One Oil Corporation (Continental Oil Company) in University 1-B, Big Lake field, resulted in the Big Lake Oil Company launching a four-well campaign on adjoining acreage, and other sections are now being explored for deeper producing horizons.

Deep well drilling in other interior sections of the state has been slow in catching on with companies and operators, probably due to opposition raised in some quarters against any project that might offer new sources of flush production, and also by reason of the expense being far greater than the general run of single well appropriations. The unusual performance of the deep well in the Big Lake field in registering monthly gains in oil and gas production since its completion 10 months ago has made deep well drilling in West Texas a worthwhile goal to shoot at, and independent companies are showing the way.

The quartet of tests being drilled by Big Lake Oil Company to the 8500-foot horizon are beyond the half way mark, with one drilling below 8300 feet, and all have successfully cased off the last water horizon to be encountered above the expected producing level. These tests are expected to cost from $150,000 to $175,000 each to complete as producers, while the deep producer in the Big Lake field cost only $141,500.54, but a few wire lines and other expensive equipment were donated by manufacturers.

In an adjoining county to the east of Big Lake field, the Kingwood Oil Company of Okmulgee, Oklahoma, is exploring the lower depths of the J. D. Sugg ranch, Irion County, with the crew now engaged in drilling out the plug after setting a string of 4½-inch A. P. I. specification pipe with 305 sacks of cement at 7550 feet. This test has a total depth of 7667 feet, and has 6⅝-inch pipe landed at 3382 feet. It is the deepest hole in the interior of the state, excepting two in the Big Lake field, and an abandoned test in the Luling field. J. W. Thomson is supervising operations for the company. Harry Neeley, drilling contractor, is using his standard rig on the location, which was originally staked for a 3000-foot test by Wesley West-Neeley and associates.

(Continued on page 232)

Oklahoma *Hard Formations Require Advance Methods and* Heaviest Drilling Equipment

By HARRY PENNINGTON
Mechanical Engineer

TIME was when the rotary drilling world looked to California for advanced methods in deep, heavy well work, but today Oklahoma employs the heaviest equipment together with advanced methods in work that has been made heavy duty by the class of formations being drilled.

Formations in the Seminole area, including Maude and Sasakwa, and in the Trosper Park field, Oklahoma City, consist largely of slate and hard shale, with some grit, and of some rock. With the advanced methods, these operators and drilling contractors have taken the advantage furnished by hard formations by using giant drilling pumps and higher steam pressures to secure high velocities of slush for flushing out cuttings faster to maintain high hole making rates. It would seem an error to assume that relatively hard formations present an advantage in rotary drilling. In one way hardness is a disadvantage, but these operations show that hardness has been turned to an advantage, with what constitutes a total net gain in lower comparative well costs.

There is no fear of erosion of well wall and caving today, although three years ago, a number of wells were lost at Seminole by caving and by cavities entered with the bit. With development of skill, and with the use of larger pumps, caving is no longer considered dangerous.

Wells at Trosper Park are drilled to about 5500 feet with six-inch drill pipe in 12½-inch hole, through surface casing, when nine-inch casing is set, followed by further rotary work with smaller drill pipe. Completion is at about 6400 feet with standard tools.

Wells in the Seminole area are drilled to about 4200 feet with six-inch drill pipe in 11-inch hole, through surface casing, followed by completion with standard tools at about 4300 feet.

From heavy equipment to heavier, and then still heavier, these operators have advanced until now the big rig exceeds that in size, power and capacity all the way through of any used elsewhere.

There are arguments against great amounts of power generated by higher steam pressure in twin drilling engines, and the hoisting speeds secured; against high circulating pressures from giant drilling pumps, against the weight of draw works of the size required to match the engine, but the fact remains that in Oklahoma, the previous lighter equipment has been replaced with the present heavy types, resulting in the completion of wells with greater speed, and with greater safety due to speed, at more commercial costs.

Figure 1 shows some of the smaller equipment, quantities of which have been set aside in this storage yard to make way for larger. This equipment is good, and usable, in lesser work.

Today a drilling contractor operating four or five rotary rigs is in big business compared with former years, for the capital investment per rotary rig now ranges around $75 000 and since both rotary and standard hole is made by the same contractor, an equal number of standard tool rigs is also required. A drilling contract at Seminole involves approximately $32 000.00 and at Trosper Park over $50.000 00. We therefore find contracting firms staffed with executives of the first order, and with engineers for technical advice.

Oklahoma Formations

There are some peculiarities about Oklahoma formations that may be of interest. In the first place, these formations are relatively hard all the way to bottom, and in a majority of cases, rock bits are used with profit from the ground surface to bottom.

A set of rock bit cutters will run for approximately 24 hours and make hole, which eliminates many round trips out of the hole and back for changing bits. There are some horizons that are "sticky" corresponding to the gumbo of the Gulf Coast and California, that may clog the rolling action of rock bit cutters, but, the use of giant drilling pumps serves to clear the bit and the rock bit, therefore, will cut all these formations without coming out of the hole and changing to a fishtail bit, disc bit or inserted blade bit, and then back again to rock bit after the sticky part of the hole has been drilled.

These developments in the art of drilling should be of major interest anywhere in well costs.

In the initial rotary drilling, six-inch 22-pound seamless heat treated drill pipe is largely used. This diameter of drill pipe not only furnishes the required greater torque capacity for rotating rock bits with heavy weights on top of the same, but also assists in lowering velocity of slush traveling down the pipe, and friction, while at the same time, velocity up the hole is

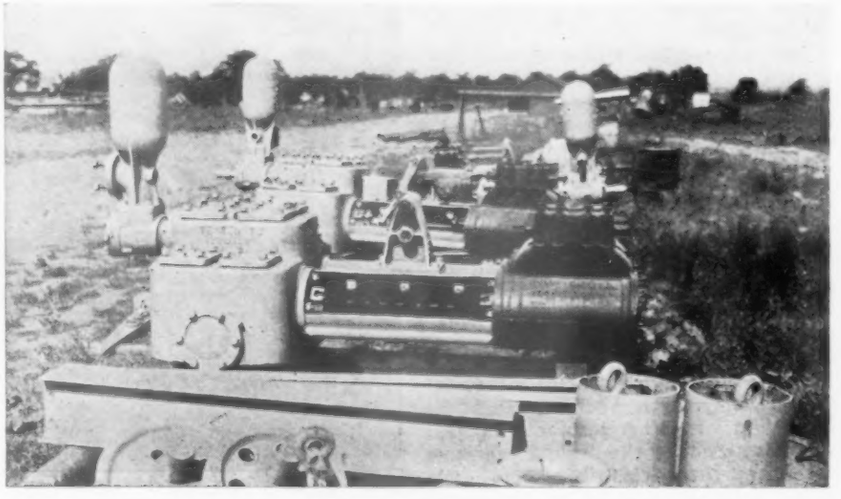


FIGURE 1
Smaller steam drilling equipment replaced by the present big rig

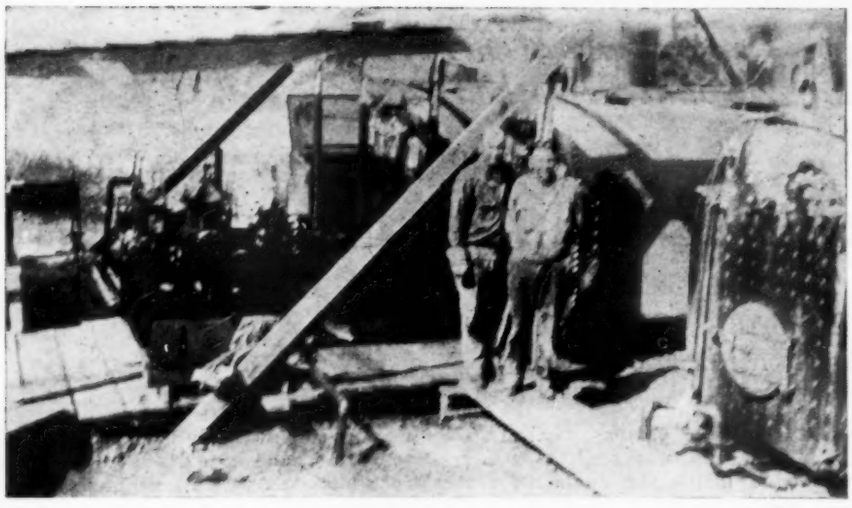


FIGURE 2
Three boiler stations

higher, flushing out larger size cuttings in greater quantity.

A string of pipe a mile long has been considered a long string of casing to set; these Oklahoma operators and drilling contractors are swinging even longer and heavier strings on the swivel and drilling with them at Trosper Park. Heavy drilling strings of pipe demand ample, flexible power for reasonably fast and low cost work, coupled with safety.

A direct measure of hole making in these wells is the torque capacity of six-inch drill pipe in twisting a rock bit with the required weight on top of it, ranging heavier than usual. Then, using six-inch pipe, a measure for power is set up, and the excessive amount of power by comparison, is greater, for the weights handled are greater.

Then, the hole diameters are fairly large, maintained so almost to bottom, requiring greater volumes of slush circulation to flush cuttings out, and since pressure increases as the square of volume, or velocity, the necessity for large pumps is also evident, together with high steam pressure for driving them.

And when other power than steam is used, such as electric motors and internal combustion engines, if the performance of steam is to be approached, the power must compare with that developed by steam rigs.

Basis of Drilling Contracts

Considering the matter of fuel and water costs, some operators let drilling contracts that require the contractor to furnish fuel and water, adding from $1.00 to $2.00 per foot to cover, thus placing the responsibility for fuel and water upon the contractor, although the operator may furnish and sell both to the rig. In other instances, operators have required the drilling contractor to purchase electric motors and power driven pumps for converting a steam rig over to electric power to effect a reduction in fuel and water costs—the operator paying for the fuel and water.

But when left to his own devices, the drilling contractor does not change his rig over to other power than steam because of the necessary investment.

Even though the electric driven rig makes a well at one-third power and water costs, compared with steam rigs, the additional time required by lower powered electric rigs offsets the difference somewhat, for the electric rig, as used, requires from one-third to one-half longer time to make a well, and the additional rig time must be considered in well costs.

As a general rule, the contractor must complete the well, meaning that he must do both the rotary and standard tool work, and that responsibility for the hole does not cease until completion in good order.

Steam, Electric and Internal Combustion Engine Driven Rigs

In an apparent endeavor to lower well costs, there are three sources of power for the rigs in use. A majority of rotary rigs are equipped with steam; a few with electric motors, and a few with internal combustion engines. These three power sources have some kind of limitation, one way or another, and the same will be pointed out.

There is a present tendency to use power other than steam, in an endeavor to lower well costs, as shown by the fact that several operators have required drilling contractors to equip their rigs with electric motors as a prerequisite to the signing of drilling contracts, and in many instances, operators have not hesitated to pitch in from $50,000 to $80,000 in an attempt to secure the low well cost advantages of internal combustion engines for drilling with the rotary.

Steam rigs in use are approximately proportioned as below:

Three to four 100 to 125 horsepower A. S. M. E. specification boilers, for 250 pounds working steam pressure operated from 250 to 265 pounds; figure 2;

12x12-inch twin, slide and piston valve, reversing engines;

14½x7¼x18 piston valve steam drilling pumps, for working pressures, with standard size liners, of 800 pounds, and with smaller liners up to 1000 pounds, arranged for operation in series to obtain pressures from 1500 to 1800 pounds; figure 3;

20-inch to 26½-inch rotaries, oil bath and open types, roller bearing shafts, machine cut gears; not equipped with make-and-break; figure 4;

Four speed draw works, with seven-inch, 7½-inch and eight-inch drum shafts, plain and equalized brakes, with plain and compounded brake levers; roller bearings; figure 5;

Six-inch and eight-inch swivels;

Roller bearing, manganese sheave crown blocks; a majority of which are of the "in-line type";

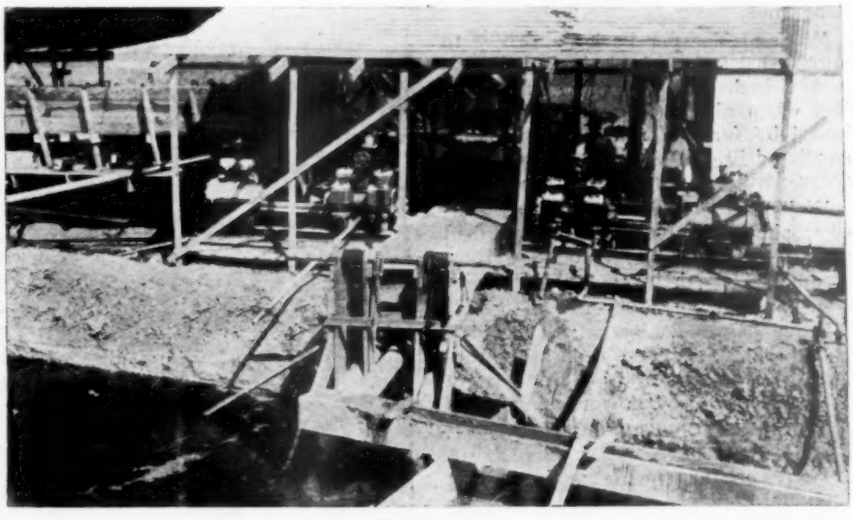


FIGURE 3
Gumbo buster 14½ x 7¼ x 18 *steel water end high pressure steam driven drilling pumps*

PENNTEX

the long looked for BETTER BELT

BECAUSE:

It is stronger A compact interlocked structure of long staple cotton, thoroughly waterproofed, which in Double Weight, tests to over 3,000 lbs. per inch width, and in the Triple Weight to over 3,500 lbs. per inch width,—far exceeding the A. P. I. specifications.
"PENNTEX" is a solid, especially interwoven belt,—NO PLIES TO SEPARATE OR BOOTLEG,—NO BINDER WARP TO CRACK.

It is more flexible "PENNTEX" Double weight can be advantageously used over pulleys as small as 8" in diameter; Triple weight over pulleys as small as 14" in diameter. FLEXIBILITY IS THUS SELF-EVIDENT.

It is heavier "PENNTEX" Belt, owing to its special construction, is over 15 per cent heavier than other oil field belts. This is a supremely important feature for the long slow drives common in the oil fields.

INVESTIGATE "PENNTEX"—Try it on your toughest drive and know why oil men everywhere are getting rid of their belt troubles through the use of "Penntex". Made in SINGLE, DOUBLE and TRIPLE thickness.

Use this coupon for details.

VICTOR BALATA & TEXTILE BELTING COMPANY

38 Murray St. NEW YORK, N. Y. — *Factories* EASTON, PA. — 345-359 W. Austin Ave. CHICAGO, ILL.

VICTOR BALATA & TEXTILE BELTING CO.,
38 Murray St., New York, N. Y.
Gentlemen:
Send me immediately full details of your fully guaranteed trial offer on PENNTEX BELT.

Company .....

Address .....

By Mr. .....

Roller bearing traveling blocks; four and five sheaves;

One and one-eighth inch wire lines;

Six-inch 22-pound seamless drill pipe, in many cases of 50 carbon steel, heat treated;

Hughes rock bits of the upper extended type, with a lower set of reamers, and in upper set, some five to six feet above;

A few disc bits, inserted blade bits and fishtails.

The initial cost of such a rig, ready to make a well approximately $75,000.

The electric rigs are equipped as below:

20-inch to 26½-inch rotaries, without make-and-break;

Seven-inch, 7½-inch and eight-inch drum shafts;

Two 75 horsepower motors where the Hild drive is used, and one 150 to 200 horsepower motor without the drilling control, for driving the draw works; figures 6, 7.

Two power driven drilling pumps, in sizes from 14-inch to 18-inch stroke, each driven by a 200-horsepower motor; figures 8, 9.

Other equipment the same as for steam.

The internal combustion engine driven rigs are variously equipped, with smaller draw works having six-inch and seven-inch drum shafts, and with drilling pumps of shorter stroke, 14-inch to 16-inch.

The rigs observed, driven by internal combustion engines, are not as large as those set out above, in that the drum shafts are smaller, together with the pumps. There are various types of hook-up of multi-cylinder engines, as will be noted further along in this article.

The size of engines range from 165 horsepower up to 250 in the six cylinder, gas engine, and in the case of two Franklin oil engines, each develops 150 horsepower at full speed. In one case, there were four six-cylinder gasoline engines of 185 horsepower each. So far as noted, there were no internal combustion engines driving drilling rigs at Trosper Park.

A few rigs are equipped with Hild Drive, using Westinghouse motors and Oil Well Supply Company draw works, and a rig driven by Franklin oil engines was equipped with Halliburton mechanical drilling control.

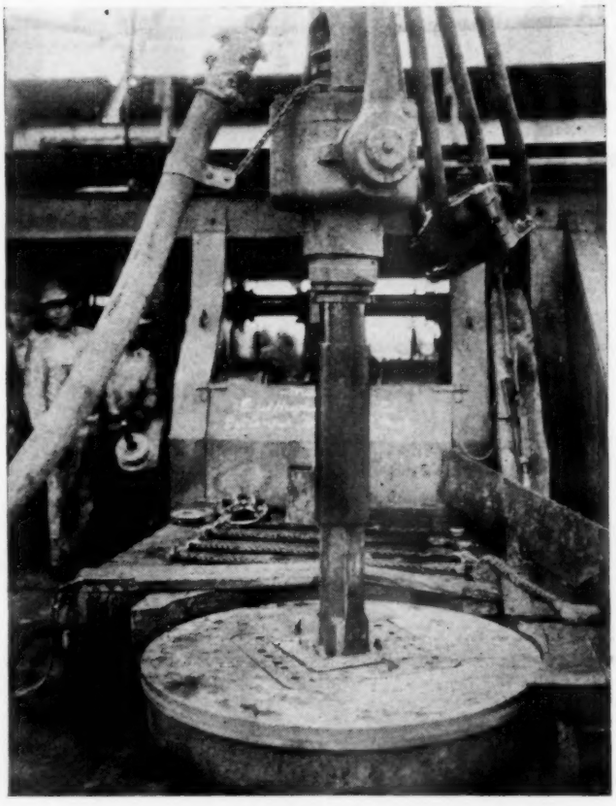


FIGURE 4

Twenty-six-inch rotary and eight-inch swivel used in drilling in South Oklahoma field

Incidentally, where such long strings of pipe are used, of the great weight as these, the drilling control relieves the driller of much labor; all he has to do is to run the bit to bottom, start the pumps, and then let the brake lever go, when the control takes hold. If for no other reason than relieving the driller of labor, controls are sure to come into general use. Claims as to straight hole made with control do not appear to be borne out fully in practice, but there appears to be no question but that where formations are fairly uniform, as in the Seminole area, and at Trosper Park, drilling controls make somewhat more hole per day, while drilling, but, since the rigs so equipped have considerably less power than steam rigs, electric drilled wells require more time to make a well, which offsets somewhat the well cost reductions due to lesser power cost with motors than with steam.

Power and Water Costs:

Some fairly reliable figures as to fuel and water costs for steam rigs show that the big rig consumes about 500,000 cubic feet of natural gas daily and about 1000 barrels of water for boilers and for hole. At 20 cents per thousand feet for gas, and five cents per barrel for water, the daily fuel and water cost therefore is $175. And where a well requires 50 days to drill as at Seminole, fuel and water costs approximate $8750. At Trosper Park, completing wells in three to five months, fuel and water costs range from $15,750 to $26,000 per well.

Electric rigs, with considerably less power, and at lower unit power costs, consume from one-third to one-fourth as much for power and water as the steam rigs.

It should be mentioned, though, that the lower powered electric rigs require from one-third to one-half more time for completing a well, and, therefore, a portion of the gain in fuel and water cost is offset by higher rig time expense, and the difference in well costs is therefore not as great as the difference in fuel and water costs indicate.

Multi-cylinder gas engine driven rigs, operating on the same natural gas for fuel, consume about one-eighth the fuel and water per well as steam rigs, although the number of wells completed with this type of rig are small. It should be noted that the hook-up of multi-cylinder gas engines to rotary rigs, as observed in Oklahoma, is not yet perfected to secure the necessary flexibility comparable with steam power, as will be noted further in this paper, and gas engine driven rigs require somewhat more time to make a well

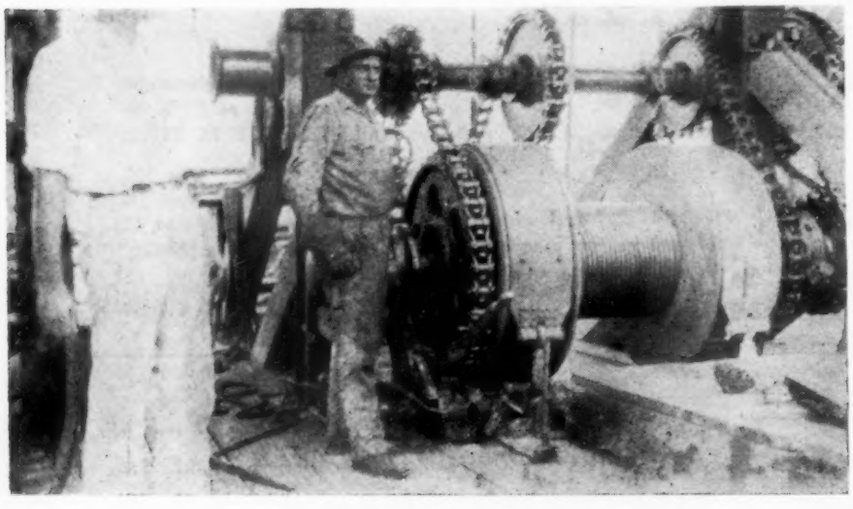
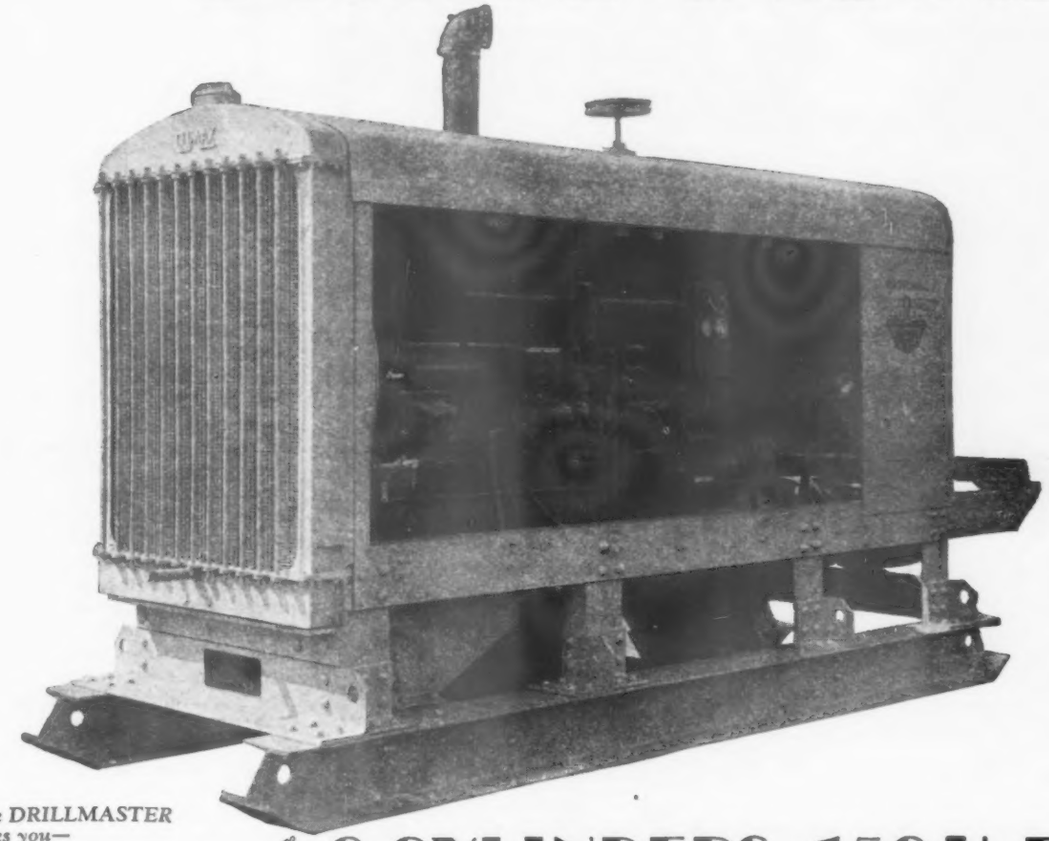


FIGURE 5

The heavy draw works, with equalized brakes, compounded brake lever, banked lever. Safety guard removed

HERE COMES THE DRILLMASTER



The DRILLMASTER gives you—

150 H. P. Engine
Valve-in-head design
Blue Streak Combustion
Large Water Passages
Large Fan and Radiator
Rocker Arms Fully Enclosed, Pressure Lubricated
Gas Mixing Valve
Diaphragm Fuel Pump
Fabricated Steel Frame
2 Outboard Self-Aligning Anti-Friction Bearings
V-Belt or Flat Belt Drive
Removable Hood and Side Panels
Electric Starter and Generator
150 Amp. Hr. 21 Plate Storage Battery
Telegraphic Control
Air Cleaner and Carburetor
18 in. Single Plate Clutch
Turnbuckles
Even a Kit of Tools

CLIMAX

6 CYLINDERS-150 H.P.

THE Drillmaster is an entirely new 6-cylinder engine that gives you even more power than the famous Climax Paymaster. It's the kind of engine you've been looking for to handle deep cable tool drilling and medium heavy rotary work. The side column gives you a few of the many new features in design and accessory equipment. You can see them all at the Oil Show, Booths 76, 77 and 135.

CLIMAX ENGINEERING COMPANY
75 WEST 18th AVENUE CLINTON, IOWA

DISTRIBUTED BY

THE NATIONAL SUPPLY COMPANIES

NSCO

than steam power, but less than with electric power.

There is one condition favorable to lower powered electric rigs in this Oklahoma drilling, that should be noted here, which is in the class of formation being drilled, and the continuous single diameter of well from the surface casing shoe to the bottom of the rotary drilled hole.

The major portion of the hole is through slate and hard shale, with some grit, and at times through rock. Using rock bits that run for a full 24-hour day, without renewal of cones, reamers, or pulling out for filling the lubricator, only one round trip per day is required; one crew comes out of the hole and the next crew goes back with the bit—using two rock bits per rig to lose no time for renewals and lubrication.

Therefore, for continuous drilling in formations that may be penetrated with just one type of bit, the minimum of drill pipe handling is required, and the lesser power of electric motor equipped rotary rigs is not so much a disadvantage as it would be where formations change frequently from hard to such as are too soft for rock bit, and then back again to hard, and in which frequent round trips are necessary for changing the type of bit to suit the formation.

A study of the time required for making a round trip with electric motor equipped rigs show that from one-third to one-half more time is required with electric power, than with steam power, which is but natural because of the difference in the amount of power furnished by the twin steam engine with 250 pounds steam pressure, developing up to 450 horsepower, and the electric motors ranging from two 75 horsepower, or one 150 horsepower, up to 200 horsepower. Compared with power, electric rigs do better than steam, as may be noted.

While the disadvantage of lesser power for handling pipe might be overcome with the use of larger motors, more comparable with steam engines in power, central stations usually object to larger motors than those now in use. And, as a matter of fact, one central station has advised that rotary wound rigs would be taken on only on condition that the well be pumped with electric power after completion. And, in most cases, the operator must pay for lines and transformer stations, if no line is nearby, and later when wells are brought in, the cost may be absorbed by central station.

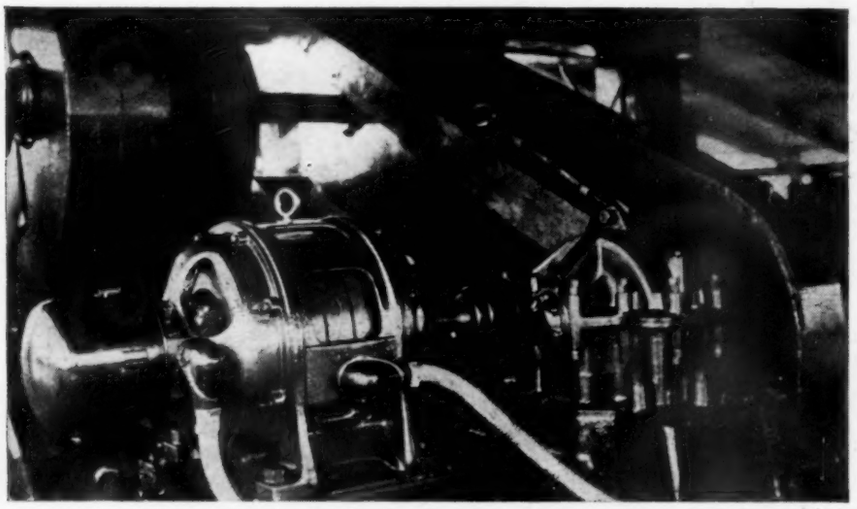


FIGURE 6
200 horsepower drilling motor with Emsco reduction gear

The type of motor used for drilling is the wound rotor, high starting torque design, equipped with outside resistance for continuous operation at speeds lower than normal, or variable speed operation.

The design is especially for high starting torque, which is quite necessary in hoisting operations; when a load of pipe is to be started upward, this type of motor develops three times its normal running torque, which serves to accelerate a load upward, and normal running torque then continues hoisting.

A check of acceleration time, made with stop watch, shows that at about 4500 feet, two 75 horsepower motors will accelerate the six-inch pipe in nine seconds, and that the hoisting speed thereafter is maintained with the full load running torque of the motors.

The overload switch used in the control is such that the switch will not throw out until after 30 seconds elapses, which affords sufficient time in which to accelerate the load upward without the switch operating.

Since the electric motor possesses a constant torque curve, its high starting torque affords an ideal condition for hoisting operations, as above outlined.

But, the same motor requires about five times its full load running current to develop the three-fold torque value above set out. Then, hoisting a string of pipe each three minutes, as each stand is set back, the high line is struck with a surge of 750 horsepower each three minutes. The power lines in use appear to be designed for this service, and still further improvements will doubtless be made in transmission.

On the other hand, when say a 450 horsepower motor, or two 225 horsepower motors are used, connected in parallel to the load hoisted, a development of five times normal full load running current when starting a load of pipe upward, would hit the high line each three minutes with a current requirement of 2250 horsepower. Unless a rig is near a sub-station, it is now doubtful that such a load would be taken on by central station, on the ground that distant rigs with 450 horsepower on the draw works would interfere with intermediate rigs, and with intermediate pumping motors.

Economic Factors

There is an economic factor involved in central station design, when applying electric power to drilling rigs, set

FIGURE 7
Drilling motor controls

STOODY COMPANY

INTERNATIONAL PETROLEUM EXPOSITION

Welcome!!

to the Stoody Booth at the International Petroleum Exposition.

The *world* has used our products, and *now* we invite the world to meet the boys that make, sell and tell about them

STOODITE . . . STOODY ROD . . . BORIUM . . . Welding Rods for every use . . . STOODY GRINDERS . . . each of this famous family of quality will be on display, *and*, a welcoming "reg'lar guy" will be on hand to tell about them . . . C'mon gang! ! ! Our booths are located in the Texas Building, Nos. 43, 44, 45. Welcome ! ! !

If you can't attend, don't be downhearted. A card or letter to us will bring full information

STOODY COMPANY

Manufacturers of WELDING ROD - ALLOY STEEL - EQUIPMENT

Whittier, California

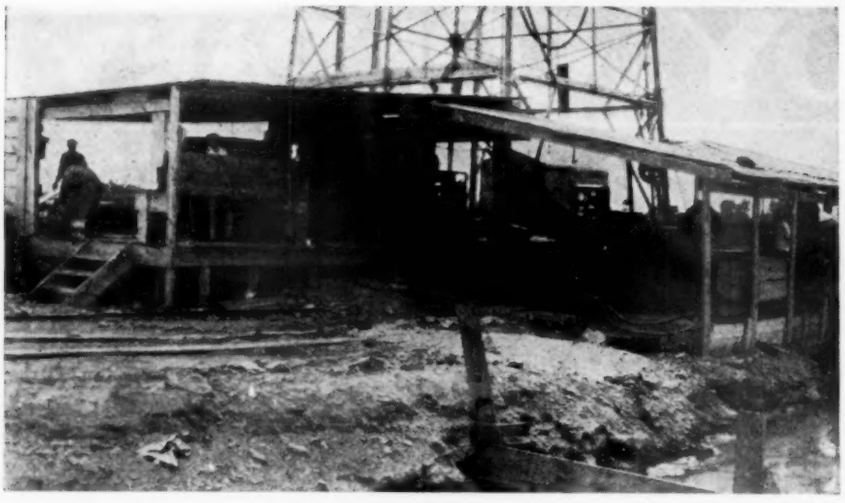


FIGURE 8
Electric drilling rig with 200 horsepower drilling motor, 200 horsepower pumping motor

up by the fact that a drilling load does not last as long as a pumping load.

Take any field, say Powell, where about 300 rigs were at work at one time. These rigs were somewhat smaller than the rigs of Oklahoma being described, and Powell is taken as an average condition, rather than a maximum.

With a power requirement, normal, of 300 horsepower per rig, which is slightly under that developed by the steam rig of this size used today in Oklahoma, and with a load factor of 66 2/3 per cent, if all 300 rigs at Powell had been driven by electric power, the central station would have been required to furnish continuously, something like 60,000 horsepower, during the time in which these wells were being drilled.

The time required for drilling this field up was about six months, after which, the drilling load would have fallen to approximately zero. But, the pumping load then would have come on. With 800 wells, each requiring an average of eight horsepower, in high efficiency pumping units, the total pumping load then, with a load factor of 90 per cent, computes 5760 horsepower, and this demand then, leaves about 52,000 horsepower of central station capacity without any load, if such a plant had been constructed as that of 60,000 horsepower.

Please understand that this is not an argument against electric power; it is an argument for the purchase of central station power when that power is cheapest, all things considered, and for manufacturing power when that power is cheapest, all things also considered.

In some instances, power companies have constructed power lines that were initially loaded, and later, that assumed only what was termed by the management as salvage value; this argument is to avoid that situation, as a means of lowering central power costs, for such burdens as that above must be reflected into power costs eventually.

Some years ago, the writer outlined the economic situation as above, to the owner of a central station. The drilling load was not sought, but, instead, electric power for pumping was vigorously sold, to the profit of both the central station and the user.

This situation is reflected in the present attitude of the average central station toward drilling loads; the drilling load affords no great amount of wattage compared with the connected horsepower; the load factor in a drilling load is very much lower than in a pumping load.

Per contra, the pumping load is an ideal load; it continues throughout each day, throughout each year, for some years and with the pumping load as a basis for plant construction, the central station may take this load on without being upset by the economic factors above outlined.

If a drilling rig was set up on a well and used on it for several years, without moving, it would offer a fair load, but, since the rig is moved from well to well, a further disadvantage is set up to the central station, especially when about all of the rigs are in operation.

For distributing power to pumping wells, and for continuous operation, central station power or power generated from a central station in the field has may advantages over individual power units, or, we may term them, isolated power plants.

But, in Oklahoma today, the oil fields are served by large central station plants, and a net work of transmission lines, making it possible to secure electric power quickly, at reasonable rates, and with excellent service.

Steam Driven Rigs

The matter of boiler efficiency, and the steam consumption of simple steam engines and direct acting pumps, both non-condensing, has been reflected in the daily fuel and water costs of steam rigs. While the economy of the pres-

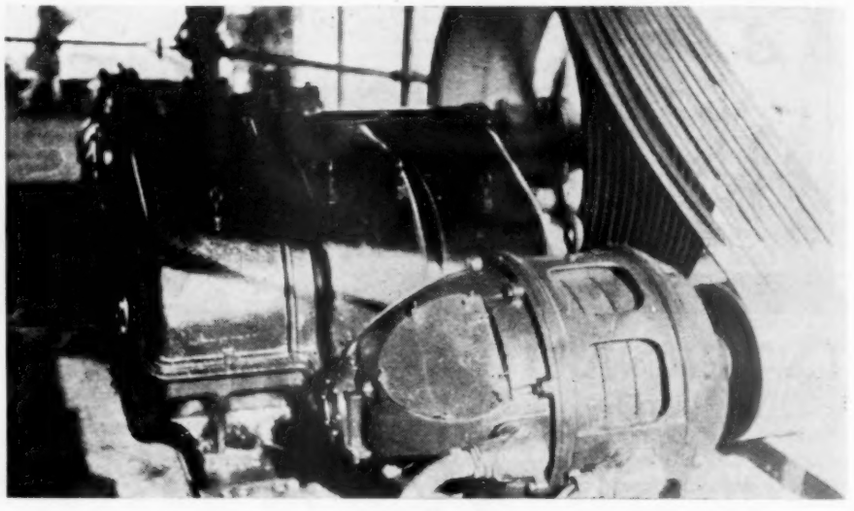


FIGURE 9
Electric driven power pump with 200 horsepower 690 R.P.M. motor

ent types of engines and pump might be materially improved, by more regard to cylinder clearance volumes, quality of steam as to moisture, jacketing, and piston valves as to leakage, the types in use are considered below.

The 12-inch by 12-inch twin steam engine used for drilling, developes approximately 450 horsepower when at full load and speed, with 250 pounds steam pressure, as shown by checking the hoisting speed of loads of pipe, together with the mechanical efficiency of draw works and wire rope gear.

As an instance:

265 pounds initial steam pressure.

Load:

4250 feet of six-inch 22-pound pipe	bls. 93,500
50 six-inch tool joints	8,000
Traveling block	4,000
Kelly	4,500
Rock bit and drill collar	2,600
Total load hoisted	112,600

The greater part of the pipe is sub-

SEE *and* HEAR

Why YOUNGSTOWN PIPE *is* GOOD PIPE

By Visiting the CONTINENTAL BUILDING

at the EXPOSITION!

"If Continental Sells It . . . . There Is No Better"

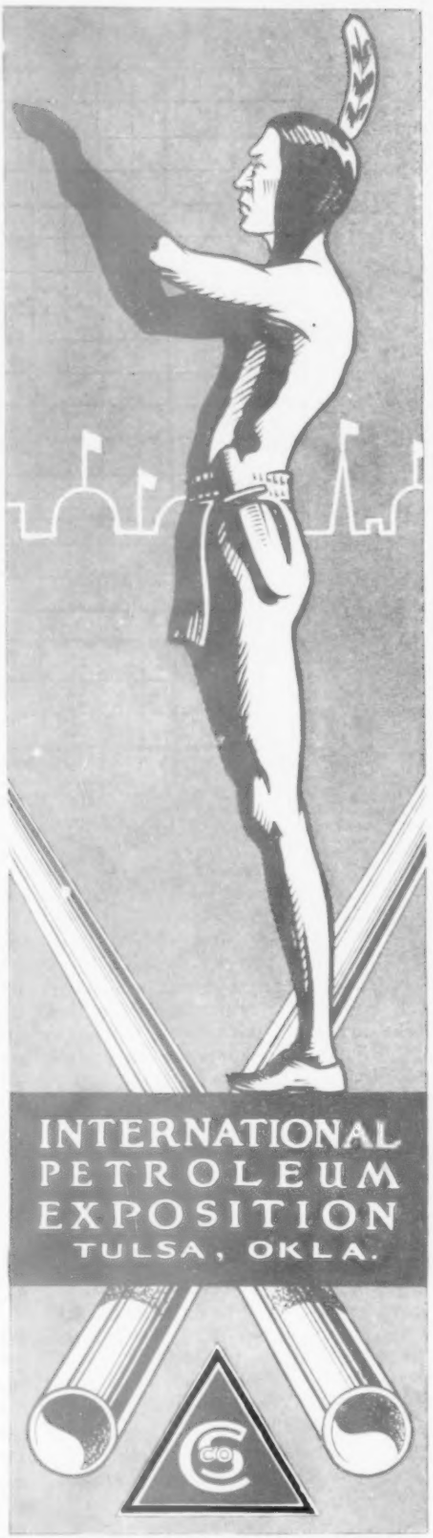
THE CONTINENTAL SUPPLY CO.

General Offices: ST. LOUIS

Export Offices: 74 TRINITY COURT, NEW YORK

London Offices:
316-17 DASHWOOD HOUSE, OLD BROAD STREET, E. C. 2

THE CONTINENTAL SUPPLY CO., Ltd.
224 TRADERS BLDG., CALGARY, ALBERTA, CANADA



CONTINENTAL

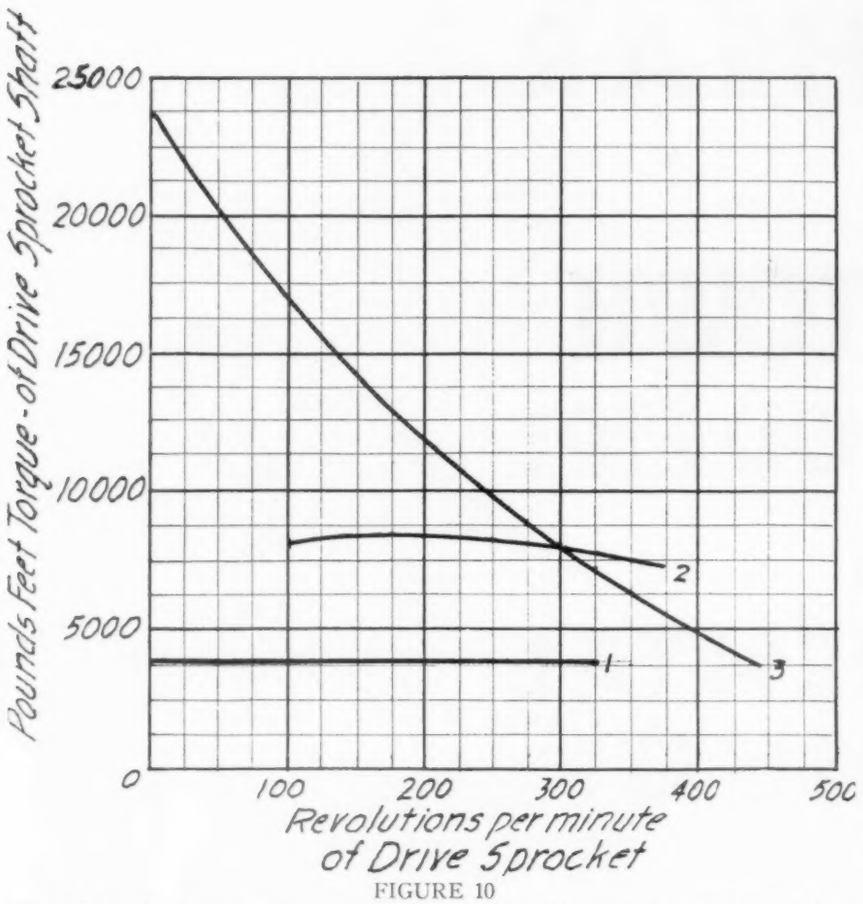


FIGURE 10

Normal running torque curves. 1—a 200 horsepower 690 revolutions per minute drilling motor, with 2/3 to 1 reduction motor. 2—Two 240 horsepower six cylinder gas engines with 4 to 1 reduction gear. 3—12 x 12 twin steam drilling engine, direct driven

merged, weighing less due to the same, but hole friction, estimating from the weight indicator, adds load approximately that of buoyancy reduction, and the load therefore is taken at the above figures.

Using the 12x12 engine, with 265 pounds initial steam pressure, the average time of hoisting a fourble of 85 feet in length, is 60 seconds, and the developed horsepower is therefore 290. With a combined efficiency of 65 per cent of draw works and wire rope gear, which is not far from correct, the brake horsepower delivered to draw works by engine is 290÷65 per cent or 446, corresponding to a mean effective cylinder pressure of 127 pounds with the engine at 93 per cent efficiency and an 85 per cent card factor.

Thus, for the work done, there is no question but that this engine developed the full 446 brake horsepower.

The maximum load on the drilling engine is that of hoisting drill pipe; the work of turning the rotary is low by comparison. The heat treated pipe being used has an ultimate torque capacity of 71,000 pounds feet, as shown by manufacturers tests and by field performance, which equals 71 horsepower, at 50 revolutions per minute of the pipe. But, the pipe cannot be stressed safely to its ultimate limit; it may be stressed safely only up to its elastic limit, which ranges about 60 per cent of its ultimate strength, for, above the elastic limit, the pipe will deform permanently, making it unfit for further service. Then the 22-pound pipe will safely carry about 42 horsepower at 50 revolutions, and, with a combined efficiency of rotary gear set and chain drive of 70 per cent the power required for drilling does not range over 75 horsepower.

A thicker wall pipe would deliver greater power to the bit, 25-pound six-inch having a torque capacity of 81,000 pounds feet and 31¾ having 100,000 pounds feet capacity. High rotative speeds are not used in this drilling.

As a matter of comment, the gears used in the rotaries, although machine cut from forgings, and heat treated, will not carry a continuous load of the maximum 71 horsepower as above, without distress, although, where the oil bath type is used, this difficulty is overcome as to wear.

Torque Characteristics of Steam Engines

For a better exposition of power for drilling, the writer goes over to a torque computation basis, rather than to the basis of developed horsepower. For this particular work of hoisting pipe, the steam engine is possessed of torque characteristics that make it difficult to exceed in performance when using either electric motors, oil or gas engines, without especial preparation in the matter of speed ratios between load and power.

When a load is hoisted, it must first be accelerated in speed and as we have seen, the load during acceleration is greater than the same load after acceleration. Tests, using the weight indicator, show that the load on the drilling hook, during acceleration, approximates twice the load after acceleration, hence, the hook load during acceleration, of the above 112,600 pounds of pipe, block, kelly and bit, becomes 225,200 pounds, or 112.5 tons.

To accelerate this load then, the engine must develop a starting torque of 26,000 pounds feet, which corresponds to a little over three times its full load running torque of 8400 pounds feet with 265 pounds initial steam pressure. The twin engine does this with remarkable facility, as we know; starting the load slowly, at first, full steam pressure builds up in the cylinders, and, as the load speed increases, the engine gradually increases also, lowering the torque requirement gradually, until the maximum engine speed is reached for the required load lifting torque, when the engine continues hoisting at that speed.

In the foregoing, no division is made as to the time required for acceleration and that for continued hoisting; the engine delivers more actual horsepower during the hoisting period due to acceleration, but the total work done is the same.

Thus, the requirement for this heavy duty is set out, in handling pipe.

In the above timing, the time required for acceleration is included as a whole, no division being made as to accelerating and hoisting time after acceleration.

The normal torque of this engine, at 250 revolutions per minute, with 265 pounds steam pressure, is 8,400 pounds feet, corresponding to a mean effective cylinder pressure of 117 pounds, plus sufficient additional pressure to compensate for engine friction.

Thus, the heavy duty requirement. If the same requirements are to be met with the electric drive, and the multi-cylinder gas engine drive, the power must at least be equal, and means must be incorporated in the hookup to meet the above condition for equally as fast acceleration, as will have the same effect, which is noted further on.

Torque Features

For clarifying the torque characteristics of steam engines, electric motors and gas engines, the writer has prepared curves; Figure 10 shows the torque curve for the 12x12 twin drilling engine, direct drive, two 240 horsepower multi-cylinder gas engines, driving through a gear reduction, and a 200

FAIRBANKS-MORSE
TYPE "Y"
VERTICAL DIESEL
CUTS OPERATING COSTS!

Read the Proof!

C. L. SUTTON
GENERAL SUPERINTENDENT

AMERICAN MARACAIBO COMPANY
ELECTRIC BUILDING
FORT WORTH, TEXAS

June 6, 1929

The Continental Supply Company,
Fort Worth, Texas.

Gentlemen:

Just three months ago we started up our first Diesel engine in West Texas and it occurs to me that you would like to know what we think of it.

Our first installation was a 40 horse power Fairbanks & Morse Diesel Oil Field Engine, it was set at our Settles "B" No. 1 which is located in the Dora Roberts Pool, Howard County, Texas. This well is producing from the pay zone found at 2900 feet, equipped with 3 inch tubing, 3/4" and 7/8" sucker rods, the oil is heavy, being of 27 gravity. This engine has been in continuous operation since its installation and has certainly performed to our satisfaction.

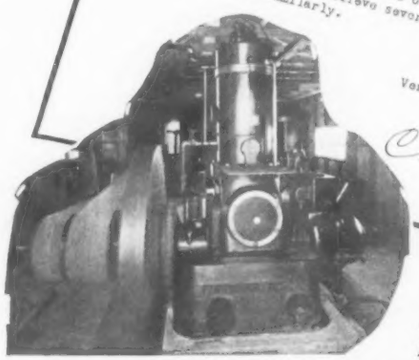
The fuel situation in West Texas is quite a problem and the Diesel engine entirely solves it, cost of operation is exceptionally low and performance very high. This engine consumes 40 gallons of crude oil per day and approximately 2½ quarts of oil, bringing the total cost to 93¢ per day - an average of $28.29 per month over a period of one year. That performance is unusually high is shown in the fact that our records disclose no shut down time charged to the engine during the three months it has been running.

The results of the first installation have been so satisfactory that we have added several more of these engines and expect to so equip our other wells as quickly as completed.

This installation has been viewed by a large number of production men who are well known in the oil fraternity and each of them seemed completely sold, I believe several are going ahead with plans to equip their wells similarly.

Very truly yours,

C. L. Sutton



"If Continental Sells It . . . There Is No Better"

THE CONTINENTAL SUPPLY COMPANY
General Offices: ST. LOUIS. *Export Offices:* 74 Trinity Court, New York
London Offices: 316-17 Dashwood House, Old Broad St., E. C. 2

The Continental Supply Company, Ltd.
224 Traders Building Calgary, Alberta, Canada

CONTINENTAL

See it at the Continental Exhibit at the Exposition

horsepower 690 revolution per minute electric motor, also driving through a gear reduction. In each case, the driving sprocket shaft torque is plotted for reducing the three to the same speed basis.

The differences in the three kinds of power are evident if the very flexible torque curve of the steam engine is to be duplicated with either electric motors or gas engines, it is evident that some means other than a plain reduction gear is necessary between motor, or engine, and the load.

For conversion of torque and horsepower, the following applies:

$$BHP = \frac{T\ R}{5252.1}$$

$$T = \frac{BHP \times 5252.1}{R}$$

where T equals torque in pounds feet
BHP equals brake horsepower
R equals revolutions per minute.

The steam engine, we see from these curves, possesses inherently variable torque characteristics; torque builds up with rising cylinder pressure for accelerating a load upward. Wire drawing through engine valves lowers mean effective steam pressures as the engine speed increases, together with friction losses of steam in pipes, but this automatic building up of torque exactly suits hoisting operations. This type of prime mover, then, may develop the same horsepower at two widely different speeds, as indicated by its torque curve.

The electric motor possesses a constant torque curve; whatever the speed, the full load torque is the same, and therefore, when full power is to be developed, the motor must operate at full speed. A motor with 10 poles, operating at a full speed of 690 revolutions per minute, developing 150 HP at that speed, will develop only 75 horsepower at 345 revolutions per minute. And, when operated at 345 revolutions, and 75 horsepower, the motor may be overloaded only in the same percentage as at full speed. For instance, at 690 revolutions, this motor will carry 165 horsepower continuously, while at 345 revolutions it will carry 82½ horsepower continuously, in both of which cases, the overload is 10 per cent. But, at the lower speed, which is secured by the interposition of resistance grids, the resistance takes as much current as the motor. In other words, the current input to motor is constant, whether full load is on the motor, or only a fractional load, for that amount of current not utilized by the motor is dissipated as heat by the resistance grids.

The torque of the multi-cylinder gas engine is, within certain limits, a matter of engine design as to valve areas, sloping curves being desirable, with the maximum torque somewhat below maximum speed, for rotary drilling work.

As shown on curves, the torque reaches a maximum of 820 pounds feet at 650 revolutions and gradually lowers to 730 pounds feet at 1200 revolutions. In this respect, the multi-cylinder engine resembles steam more than the electric motor.

Multi-Cylinder Gas Engine Drive

Gas engines being used are generally of the six cylinder type, operating on natural gas or gasoline fuel, in sizes from 140 brake horsepower up to 250 horsepower each. From two to four engines per rig affords a total connected horsepower per rig from 280 to 1000 horsepower.

The multi-cylinder has many advantages, such as low fuel consumption, low water consumption, low weight and portability, acceleration, moderate cost, with only one disadvantage which is that like any type of internal combustion engine, its torque is practically constant; if this type of engine develops say 200 horsepower at 800 revolutions, at 400 revolutions, it will develop only half as much power, or 100 horsepower.

The duty being extremely variable when hoisting pipe, when drilling and pumping, the hookup must therefore overcome the constant torque disadvantage; there must be suitable speed ratios which will allow the engine to run at full speed continuously, to develop full power, while the load speed, in hoisting pipe, must be adjusted to such speed as will hoist the same at a rate which will absorb full engine power, to obtain rapidity. If the maximum load and maximum speed of that load is met with a speed ratio between engine and load, unless other ratios are provided, other loads and speeds cannot be secured. The ratios afforded by standard types of draw works are such that they are too close together.

But, with a proper hookup of engine to draw works to overcome the constant torque disadvantage, the multi-cylinder gas engine possesses advantages over other types of power due to inherent flexibility in speed over wide range and to very fast pick up.

The objection is made at times to the assumed shorter life of multi-cylinder gas engines, assumed shorter because of their relatively higher rotative speed. When, however, a design of engine is selected that is ruggedly built, for heavy duty, with corresponding sizes of main bearings, piston pins and other parts, for sustained full load at continuous full speed, its useful life extends over a period of 10 or 12 years, properly maintained.

Automotive engines are designed quite differently from heavy duty engines of the same general type; automotive engines, while satisfying conditions for automotive work, are entirely unsuitable for sustained full speed and load and the general opinion as to the durability of heavy duty multi-cylinder gas engines has been undoubtedly due to bearing and piston pin bushing failures of automotive engines, which are not usually designed for heavy duty.

As a matter of fact, maintenance of the heavy duty multi-cylinder engine is far less in cost than the maintenance of boilers of equal capacity, for boilers must be washed regularly, tubes must be rolled at times and replaced entirely at intervals, boiler scale requires removal, and allowable pressures decrease with age.

Included in Figure 11, is a torque and horsepower curve of a Climax valve-in-head six cylinder engine, which is self explanatory. This engine, with its rising torque value with lowering speed, somewhat offsets the disadvantages of a constant torque curve.

Electric Motor Drive

The electric motors being used are those of the induction slip ring type—wound rotor—equipped with outside resistance grids for starting, and for maintaining any speed of 10, below the full speed. With 10 poles, the synchonous speed is 720 revolutions per minute, and the full load speed is 690. The torque delivery of 150 horsepower motor at 690 revolutions is:

$$T = \frac{BHP \times 5252.1}{RPM} = 1142 \text{ pounds feet.}$$

The design of this motor, as shown in Figure 6, is especially for high starting torque, and it will deliver three times its full load torque for a few seconds. When accelerating a load upward, greater power is required for acceleration than after the load has reached full hoisting speed, and this type of motor therefore is especially adapted to drilling work with reference to hoisting pipe.

I have endeavored to show this characteristic of the slip ring drilling motor, on Figure 12. Starting the load upward at full torque and full speed, the developed torque rapidly mounts from 1520 pounds feet to over 4500 pounds feet, and, although the speed of rotation lowers, the additional torque starts the load upward, accelerating the load before the motor stalls. And after acceleration, the hook load lowers to approximately that of the pipe weight, which allows the motor to continue hoisting without overload. With this in view, it is quite necessary to fix the ratios of speed between motor and load, in the reduction gear, chain drives and wire rope gear, at such figures as will not exceed the foregoing torque limit else the motor overload switch will throw out, or, if not, the motor will burn out if the load is not removed from it.

Thus, the matter of hoisting pipe is also one of load acceleration considerations.

If the maximum overload as above is applied only once an hour, the motor does not heat, but, applied each three minutes above the maximum, heat develops in the motor, which, if continued, will damage the motor. These motors are provided with overload switches that throw out if the load is too great,

A GREAT LINE

Led by—

Rough Rider

Rough! Tough! Never Get Enough!

(The Battle Cry of the Rough Riders)

See it in the Continental Building at the Exposition

Rough Rider Belt

Rough Rider Rotary Hose

Rough Rider Steam Hose

Wilcox Special Rotary Hose

Wilcox Special Belts

Severe Service Brands of Belting Hose and Packing

Manufactured by
THE MECHANICAL RUBBER CO.

"If Continental Sells It . . . . . There Is No Better"

THE CONTINENTAL SUPPLY CO.
General Offices: ST. LOUIS. *Export Offices:* 74 Trinity Court, NEW YORK
London Offices: 316-17 DASHWOOD HOUSE, Old Broad Street, E. C. 2

THE CONTINENTAL SUPPLY CO., Ltd.
411 LANCASTER BLDG., CALGARY, ALBERTA, CANADA

CONTINENTAL

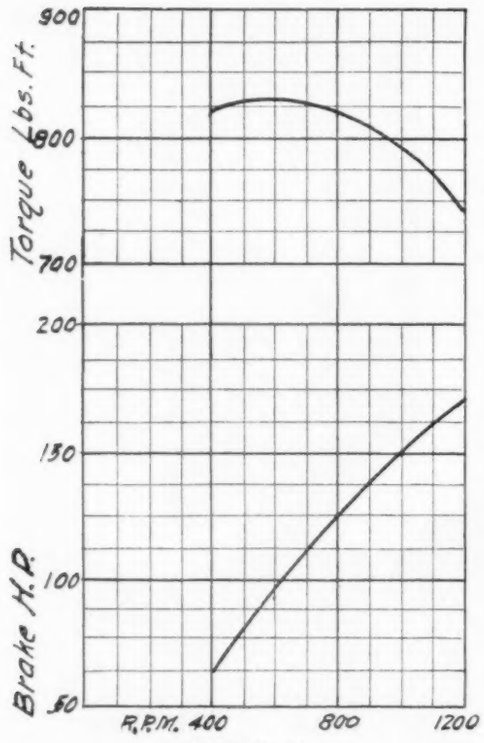


FIGURE 11

Torque and horsepower curves, Climax six-cycle engine

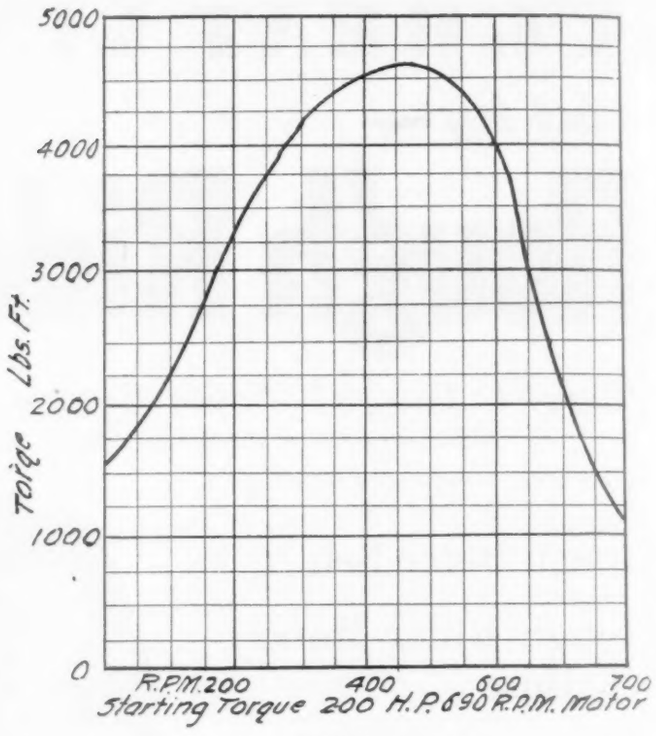


FIGURE 12

Momentary maximum torque of 200 horsepower twin pole alternating current slip ring motor

or if the duration of overload is too long, for protection against heating.

While the electric motor for drilling has been materially improved, together with control, the inherent constant torque feature as above set out has not been, and from the nature of alternating current motors, there seems to be no likelihood of designs soon that will approach steam engines as to torque flexibility.

The high starting torque advantage shown, assists in securing the flexibility necessary for starting heavy loads of pipe upward, but, when drilling, this is somewhat of a disadvantage in that should the bit hang up in rock, or ball up and stop in sticky shale, the motor immediately builds up high torque, which tends to overload the drill pipe and twist the same off. This does not occur in steam engines, for, without a governor, and being under throttle control, the engine immediately slows down; and multi-cylinder gas engines, throttle controlled, also slow down, although, if this type of prime mover is governor equipped, slowing the speed opens the throttle; therefore, multi-cylinder engines should have no governor, but should have only a maximum speed control to limit the speed to that permissible, maximum, with lower speeds throttle controlled.

Recently, an especial control for the electric drilling motor has been brought out which can be brought into use by pushing a button at the time drilling starts. This auxiliary control limits the current input to such point that the motor will develop only as much torque as the drill pipe will safely carry, and above that point, an overload switch will throw out, stopping the motor, thus setting up safety against excessive motor torque.

It is evident, however, that a 150 horsepower electric motor will not hoist a load as fast as a 446 horsepower steam engine. Further timing shows that, due to the lesser horsepower of electric motors in use, the time of making a round trip with motors is approximately 50 per cent. greater than with the steam engine, and, while the motor shows a lesser power cost, it shows a greater rig operating cost than steam.

To equal steam power in time of making a well, the electric motor must possess as much power as the steam engine, meaning that not less than 450 horsepower in motor, or motors, must be used if steam is to be equalled in performance.

One disadvantage, not to the power consumer, but to the electric central station, is that of high starting current required by the high starting torque motor. When the motor develops its maximum torque of three times normal, the current input is five times normal, and, when hoisting pipe, setting back a stand each three minutes, the high voltage lines are subject to surging, for the 150 horsepower motor draws 750 horsepower of current, momentarily, each three minutes. If 450 horsepower is used on the draw works, the high line would be struck each three minutes with a surge of 2250 horsepower, and unless the drilling rig is in close proximity to a sub-station, transmission line troubles develop. It is doubtful that any central electric power station will permit the use of 450 horsepower on a drilling rig, because of the line surges above set out, at this time. For a central power station, drilling loads are not desirable anyway; the connected load is high, compared with the wattage secured by the power company; the load factor is low, in the current type of rotary rig hookup and the power factor of the motors is not as high as desirable.

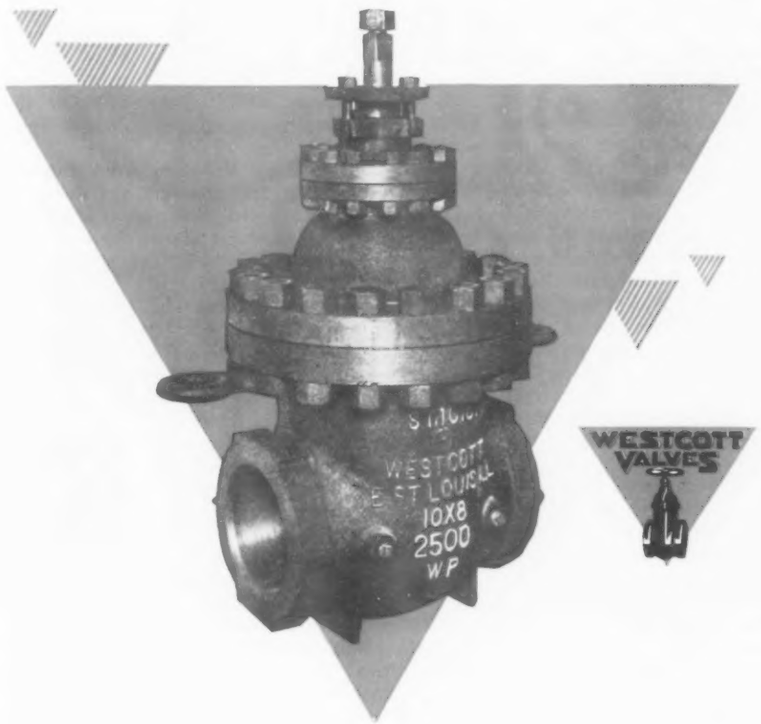
Electric Rigs Need More Power

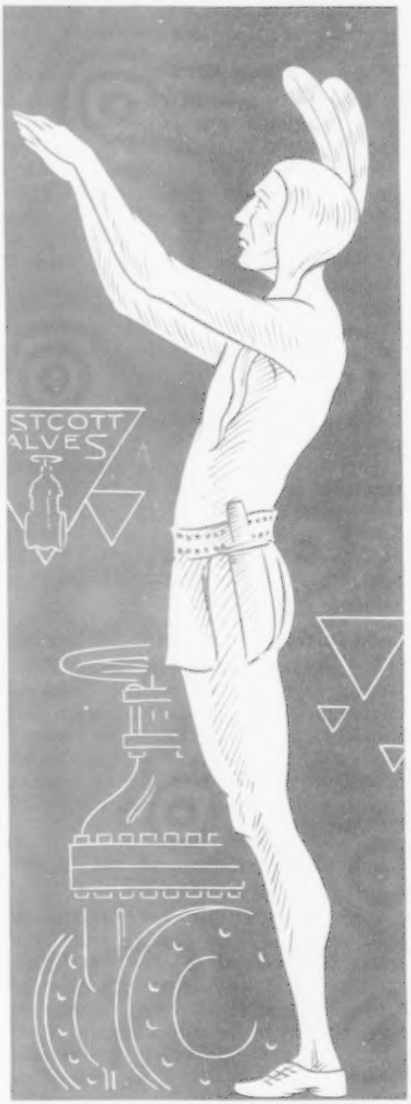
To make as fast time in handling pipe, the electric motor must possess equal power as steam engines, and further, the speed ratios between draw works and motor must be very correctly proportioned to enable the motor to run at full speed, to develop full power, because of the normal full load torque constant of the electric motor.

There is just one thing a drilling contractor fights to maintain existence, and that is **time.** If old Father Time overtakes thim, there is a catastrophe. If better, faster, more powerful, more convenient equipment is brought out, he discards the old and substitutes the new, with rapidity, or, even better, when he realizes some limitation in equipment, he immediately demands something better. These demands have set up a continual improvement in drilling rigs, and to the present Oklahoma rig of giant size, compared with those in use in any other part of the country.

Still, the limit has not been reached; there will soon be 14x14 twin steam drilling engines in the field, estimating by demand, which will develop approximately 650 horsepower at full speed

SEE THIS AND OTHER WESTCOTT VALVES AT THE EXPOSITION IN THE CONTINENTAL BLDG.





2500 lb. Westcott Steel Drilling Gate Valve tested to 5000 lbs.

Seats integral. Metal gaskets throughout. Stainless steel stems of high tensile strength. Stuffing boxes, gland and throat bushed with bronze.

"If Continental Sells It . . . . There Is No Better"

THE CONTINENTAL SUPPLY COMPANY

General Offices: ST. LOUIS. *Export Offices:* 74 Trinity Court, NEW YORK
London Offices: 316-317 Dashwood House, Old Broad Street, E. C. 2.

THE CONTINENTAL SUPPLY CO., Ltd.
224 TRADERS BLDG., CALGARY, ALBERTA, CANADA

INTERNATIONAL PETROLEUM EXPOSITION

Tulsa, Okla.

CONTINENTAL

and load, and also, the limit in steam pressure has not been reached.

Heavy Oil Engines

The heavy type of oil engine, while very economical in power cost as to fuel, possesses inherent disadvantages compared with steam engines, electric motors and multi-cylinder gas or gasoline engines. When operated at low speed, the heavy type oil engine tends to "hunt;" the heavy flywheels prevent fast acceleration and deceleration for engaging and disengaging dental clutches, losing time; high inertia forces of the heavy, spinning flywheels sets up a measure of risk in twist off, in rough rock and sticky shale drilling; the heavier weight of this type of engine, compared with the multi-cylinder gas engine sets up higher dismantling, transport and erection costs; foundations must be of concrete, setting up higher costs, compared with timbers used for other types of power, for the concrete foundation has little salvage value.

Solid Injection High Speed Oil Engines

Recent development in the solid injection, higher speed, multi-cylinder oil engine field has produced a unit that should be of considerable value in drilling work, as to power cost, although it still remains to furnish this type of engine with the flexibility of the multi-cylinder gas engine.

Load Characteristics of the Steam Driven Drilling Pump

When a well of this area is started, as in other areas, the drilling pump operates at full speed, to deliver sufficient slush to flush the greater amount of cuttings out of the large diameter portion of the hole, by securing greater velocity. In a paper printed in this journal several years ago, the writer discussed slush velocities which may be applied to this work.

Then, initially, pump pressure is low, but the volume is large, for, as a general proposition, the giant drilling pump used in this area is operated with the throttle valve wide open throughout the drilling of a well. It is quite remarkable that the present design of duplex pump with 18-inch stroke length operates at piston speeds up to 250 feet per minute, without distress, and without a knock. The writer knows of no other direct acting pump practice where the same speeds are secured, even in express pumps used for high pressure dewatering of metal mines.

With 80 per cent. mechanical efficiency, Table 1 applies to the 14½x7¼x 18 drilling pump:

Table 1 is not only the actual horsepower that this pump develops, but is also indicative of the large amount of power required for heavy duty drilling work.

Many of these pumps operate continuously at 60 to 65 revolutions per minute, four strokes to the revolution, at pressures ranging from 550 to 650 pounds. Whether there is slippage or not, does not effect the plunger load, for it is the same, as shown by the pressure gauge, whether there is slippage or not.

Taking a specific instance, drilling at 4,300 feet, 12-inch hole, 6-inch drill pipe, this pump was operating smoothly at 56 revolutions per minute, 590 pounds gauge discharge pressure, 265 pounds boiler pressure, corresponding to a plunger speed of 168 feet per minute.

This computes 248 water horsepower, and at 80 per cent mechanical efficiency, the steam cylinders were developing 310 brake horsepower. Yet, this well was not down; it had 1200 feet more to go, and if the same velocity of slush is maintained for flushing cuttings out, to maintain the same hole making rate, at 5500 feet, the required pressure becomes about 800 pounds, and the required horsepower, 400.

Of course, at a working load of 310 horsepower, the two direct acting steam cylinders of this pump consume large quantities of steam—much more than the engine when hoisting pipe. Three 125 horsepower boilers, and sometimes four, are required, and these, as we know, operate at heavy continuous overloads, which they must do to carry this pump.

The size of boiler plant—that is, the steaming capacity, in pounds of steam per hour—places a big rig, now in the class of fairly large station; delivering say 35,000 pounds of steam per hour, the same amount of steam in a turbo-generator station might be made to deliver 4000 horsepower hours, per hour.

The larger drilling pumps are equipped with piston valves, as shown, for economy in steam, and for balancing the seam valves. While the valve itself sets up better economy, there is perhaps no machine more extravagant in the use of steam than the direct acting steam pump, and it is the drilling pump, not the drilling engine, so much that consumes large quantities of steam, and fuel and water.

When smaller pipe is used, it is quite necessary to reduce the quantity of slush circulated, from 5500 feet down to the bottom of the rotary drilled hole. The total pump pressure is a matter of friction developed while circulating; the pressure imparted to slush entering drill pipe, is all lost by friction when that slush emerges. Then, the only means of adding to pressure is by adding to volume, and since the friction increases as the square of volume, or velocity, an increase in pump speed from say 40 to 50 revolutions per minute, means an increase in pressure in a proportion as the square of velocity, or pump speed, meaning that the increase in pressure is in the relation of 1600 to 2500, or approximately 50 per cent greater pressure; when an increase is made from 50 to 60 revolutions per minute, the pressure increase is in the ration of 2500 to 3600. In some cases, due to slippage, the velocity increase does not correspond to the pump speed, as indicated by a lower than expected pressure at the higher speed.

TABLE 1

BRAKE HORSEPOWER TABLE

14½ x 7¼ x 18 Duplex Direct Acting Steam Driven Drilling Pump. Displacement per stroke, 12,684 gallons. Plunger area, 41,282 square inches. 250 pounds Steam Pressure.

RPM	GPM	Discharge pressure in pounds per square inch.									
		200	300	400	500	600	700	800	900	1000	HP
30	386	55	82	111	139	166	193	221	248	275	HP
40	515	74	111	147	185	221	259	296	333		HP
50	643	92	139	185	231	277	324				HP
60	772	110	166	222	278	332					HP
70	900	129	193	259	324						HP
80	1029	147	220	296							HP

Large Slush Volumes Advantageous

From several quarters, the doubt has been expressed that such large volumes of slush as shown by the above table are of benefit, for, as we have seen, the displacement at 60 revolutions per minute is 772 gallons per minute, which sets up a velocity in 11-inch hole, with 6-inch drill pipe, of three and one quarter feet per second, up the hole, at 80 per cent pump volumetric efficiency.

Close examination and comparison with above ground flow of water in channels, shows that in average earth canals, erosion occurs at velocities of four feet and above per second; when proportioning the gradient of open channels, this velocity is not exceeded, except where the channels are lined with concrete.

It is true that the well walls are vertical, and that caving difficulties are to be considered also, but, the relatively hard formations of Oklahoma, in the districts covered, are such that serious caving now very seldom occurs with velocities of three feet per second of slush.

In other districts, such velocities are unsafe, as for instance on the Gulf Coast, where one and one half feet per second is a safe maximum, although the average velocity in use there is lower than one foot per second.

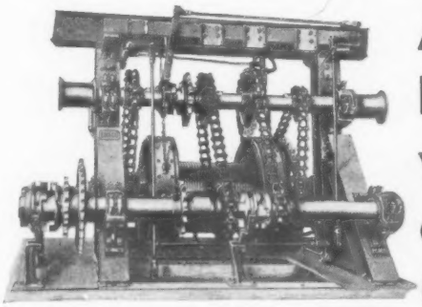
There is a possibility that erosion occurring in Oklahoma drilling may be due to the very high velocity of slush when passing by the rock bit, for the bit is larger in cross section than the drill pipe.

But, even this phase of high velocity in passing the bit is of material advantage, as I shall point out.

In the few cases of caving hole observed, the instant a cave occurred, pump pressure built up, and the cave dissipated by pressure and slush volume, flushing the cavings out immediately.

Several years ago, many holes were lost due to caving, but, with larger

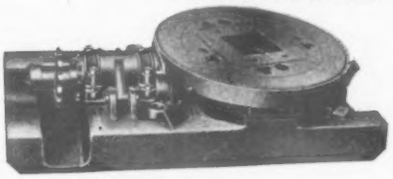
See These EMSCO PRODUCTS in the CONTINENTAL Bldg. at the EXPOSITION



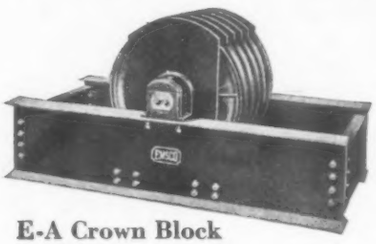
H-46 Draw Works

A Complete EMSCO Rig will be set up as part of the Continental Exhibit . . . .

Traveling Block



D-A Rotary



E-A Crown Block

B Swivel

"If Continental Sells It . . . . . There Is No Better"

THE CONTINENTAL SUPPLY COMPANY

General Offices: ST. LOUIS. *Export Offices:* 74 Trinity Court, New York
London Offices: 316-17 Dashwood House, Old Broad St., E. C. 2

The Continental Supply Company, Ltd.
224 Traders Building Calgary, Alberta, Canada

CONTINENTAL

pumps, higher pressure steam, and more knowledge of the drilling, this difficulty has disappeared almost entirely, although skill is required as to this feature of Oklahoma drilling.

And as to caving due to the rock bit, this appears to be a disadvantage, but with it there is the advantage of high velocity of slush up around the bit, which prevents the bit from balling up; even though formations become sticky, these large slush volumes drive so fast by the bit that the bit is maintained clear, coming out of the hole perfectly clean immediately after drilling a sticky formation.

Observing a 14-inch stroke drilling pump in use, immediately a sticky formation was encountered, the bit began to ball up, requiring a round trip to replace the rock bit with a fishtail, to get through safely. There is no question but that the driller's judgment that the pump was too small, is entirely correct.

For this reason the writer is firmly convinced that the giant pump will remain in Oklahoma, and that even higher pressures than now being used will prevail, for maintaining the same required velocity in deeper holes.

The only thing that generates pressure when pumping slush down a string of pipe and back to the surface is friction; friction of fluid going down the pipe and up the hole. The initial pressure head inside of drill pipe at the surface is entirely absorbed by friction when the slush reaches the surface again. Then, to maintain velocity means that friction becomes constant, in a given uniform diameter hole, with the depth. With six-inch drill pipe in 12-inch hole, friction approximates 14 pounds per 100 feet of hole, using the 14½x7¼x18 pump at 60 revolutions per minute, with the average weight of slush prevalent. In 11-inch hole with six-inch pipe, friction approximates 21 pounds per 100 feet of hole.

Then, with a 5500 foot hole, 12½-inch in diameter, using six-inch drill pipe, the pump working pressure becomes almost 800 pounds.

When circulating down through four-inch or three-inch pipe, after nine-inch casing is set at about 5500 feet, working pressure mounts very high, with small liners, in fact, with the same velocities as those set out above, drilling hose now in use will not carry such pressure, blowing out at 1000 to 1100 pounds.

From all the foregoing, we now see that the giant pump requires much more power than thought; to meet the variable speed and pressure conditions set out, the steam pump is admirably adapted. When the hole gets sticky, the pump buckles down to the higher pressure, slowing up a little and building up pressure that drives fast enough to clear a balled up hole.

To meet this condition with an electric driven, or gas engine driven pump of the same size to deliver the same pressure, then, is a matter of moment, and the writer will outline the same further along.

Advantages of Single Diameter Hole

There is an advantage in Oklahoma drilling, as to hole diameters, insofar as the same affects pump pressures, in that after surface casing is set, the rotary hole is carried in a single diameter to the bottom of that part of the hole rotary drilled. Then, the only additions to pump pressure are those set up directly by additions to hole depth, as above.

On the other hand, in a district where several strings of casing are set with the rotary, as for instance in California, or on the Gulf Coast, pump pressure rises when the hole is reduced, and also pressure increases directly with depth.

The steam driven pump meets this condition usually without changing liners, while, in power driven pumps, such a situation is rather difficult to meet without especial preparation in the hookup design.

As I have shown above, the brake horsepower delivered by the steam cylinders of a 14½x7¼x18 drilling pump was 310, with the pump at 56 revolutions per minute, 590 pounds gauge pressure of the discharge.

The usual size of electric motor, used for drilling pumps, is one of 200 horsepower at 690 revolutions per minute, shown in Fig. 9. That this size of motor, driving a 7x18 duplex power pump, is entirely inadequate to deliver the same volume and pressure of a steam pump with the same displacement, is evident, for we have no means of developing 300 horsepower with any kind of a 200 horsepower machine.

Yet, in the case cited, the steam pump was not yet delivering as much pressure as required as the hole approaches bottom.

In steam pump operation, the flexibility of steam lends itself to the adjustment of pump speed, and to available pressure; the ratio of steam and water ends is 4, and with 250 pounds boiler pressure, the pump shut off pressure is 1000 pounds. As the pump discharge valve is opened, slowly, in making speed-pressure determinations, the pump increases in speed, as the pressure lowers, until we have an open, free flow, without pressure against the discharge, and the pump is then at its maximum speed.

Every condition found in drilling is met, with this flexibility, automatically, by steam pumps. As the pressure increases, with depth of hole, the pump automatically slows down, to allow building up the pressure to that required within the capacity of pump.

Then, with the pump throttle valve maintained wide open, pump speed is maximum when the bit is put into the ground, and the pump pressure is minimum; as the hole deepens, pressure rises, and the pump speed lowers.

The only speed-pressure adjustment obtained, is that inherently due to the pump itself.

When the electric driven pump is used, in the same size, we have quite a different condition as to the power for driving the pump.

Electric motors, like gas engines, possess a full load torque that is constant; that is, the electric motor torque is constant, while that of the gas engine varies a little.

If a gear ratio is adopted between motor and pump that will operate the pump at 40 revolutions per minute and 520 pounds pressure, maximum, requiring 200 developed motor horsepower, and the pressure then rises to 600 pounds, as the hole deepens, the motor will be overloaded, hence, the motor speed is reduced, in order to reduce the pump speed, to effect a reduction in pressure.

But to reduce the motor speed also reduces motor power directly as speed. For instance, operating the motor at 690 revolutions, and 200 horsepower; if the motor speed is reduced to 621 revolutions, the horsepower delivery is 180, and at this delivery and speed, the motor is subject to overload just as it is when running at full speed. If the motor develops 180 horsepower at 621 revolutions, the motor is at full load, and when say 18 horsepower is added to the load, the motor is then overloaded 10 per cent.

These characteristics of electric motors require that the pump speed be reduced, and, since the discharge pressure lowers as the square of pump speed and slush velocity, a slight reduction in pump speed lowers the required power materially, and by this means the pump power is lowered to that within the capacity of the motor. As an example, with the pump at 500 pounds pressure 45 revolutions; if the pressure rises to 550 pounds, the pump speed must be lowered to 36 revolutions, and the motor to 80 per cent speed, which lowers the load to 80 per cent, and the motor then develops only 160 horsepower at full load.

By way of information, the pump table above applies also to the brake horsepower required by an average 7¼x18 duplex power driven drilling pump. Whatever speed ratio is adopted, between motor and pump, this table may be used for ascertaining the power developed by the motor at any speed of it and the pump, together with the power required by the pump, within its limitations.

The gas engine, possessing approximately the same torque characteristics as the electric motor, is subject to the same computation as to power delivery, for, as the speed of the engine is lowered, the power is also lowered.

For this drive, where the bit may ball up or plug, which is not infrequent in this drilling, the gas engine possesses no high momentary overload capacity, such as that possessed by the electric motor, and therefore, the gas engine will stall, whereas, the electric motor builds up its power to three times normal value, quickly, when the

Mechanically *right*

SPECIA LIZED

Balls & Seats

for every possible pumping condition:

STEELEX
For wells where excessive sand is present.

REPELEX
For wells where acid is present.

BRONZEX
For wells where alkali or lodestone is present.

COMBINEX
Steelex Seat and Bronzex Ball assures long and efficient service when both lodestone and floating sand are present.

HOUGH
EXTENSION
LOWER VALVE

No leathers to cut out—less cut oil and B.S. Very effective on head wells—fits any size working barrel.

Hough Seamless Steel Working Barrel

A popular favorite for over a quarter of a century—long wear plus assured efficiency.

SEE OUR EXHIBITION DISPLAY
BOOTH 84, TEXAS BLDG.

THE CHAS. N. HOUGH MANUFACTURING COMPANY
FRANKLIN, PENNSYLVANIA

bit plugs. That is, within the gas engine cylinders, no high momentary torque develops, although the flywheel does add to torque, due to its stored energy of revolution.

The high momentary overload torque of the electric motor may build up pressures for a few seconds that will burst the hose, or blow it off of the connection; this phase of drilling is avoided with gas engines. Incidentally, higher pressure hose is now necessary. Three-inch hose appears to deliver less service than 2½-inch, due to three-inch requiring much heavier walls proportionately, than 2½-inch for the same pressure. And the pressure surges, due to setting power driven pump crankshafts at 90 degrees, also appears to limit the life of drilling hose.

Group Drive—Individual Drive

When a rotary rig is drilling, the rotary and pump are running, with the draw works shut down; when hoisting pipe, no drilling is being done, and the rotary and pumps are shut down. Taking advantage of this feature, the writer has developed a hookup, used for six years with multi-cylinder gas engines, and which is also suitable for electric motor drive, which utilizes both engines, and the power of both engines may be used for hoisting pipe, while, when drilling, the power of both may be used for the pump and rotary, yet, any rotary speed, any pump speed, and any hoisting speed may be used that will require full power, for the engine may run at full speed and power for any operation, with any unit at its proper speed, securing at once even more flexibility than steam, yet with considerably less connected horsepower than in current hookup designs.

As an example, compare a current electric motor driven rig, with a current steam rig, and with the above hookup:

Steam Power	Electric Power	The Above Hookup
Draw works ...450 HP	Draw works ...450 HP	Two 225 HP motors the power of which may be applied where needed and when
One pump 325	One pump 325	
One pump 325	One pump 325	
Total . ....1100 HP	Total . ....1100 HP	Total . .....450 HP

The above includes motors on the electric rig, of such size as compares with steam power, although such size electric motors are not used. As used, the total connected horsepower is 150 on the draw works, and two 200 horsepower motors on the pumps, or a total of 550 horsepower, yet, the draw works is 300 horsepower short of steam power, and each pump is 125 horsepower short of steam power.

But, in group drive, with 450 horsepower, with proper speed ratios, 450 horsepower may be applied to the draw works when hoisting pipe, and 375 horsepower to the pump, 75 to the rotary, when drilling. Thus, the group drive hookup requires 650 less connected horsepower to do the same work that individual drive as now used, requires.

In addition, the above hookup eliminates mechanical losses in transmission of power by driving directly into the power pump without chain or belt, making a compact power plant of very low comparative cost, yet with extreme flexibility.

Reduction Gears and Hild Drive Gears

Power transmission through gears has shown the most excellent results, both in durability and in mechanical efficiency. So far as determined, no gear failure has occurred, and one gear box had been running for almost five years. The reduction gears run in a bath of oil, and no visible wear of gear teeth of moment was observed.

Modern gearing, accurately cut and heat treated, mounted on rigid shafts, in rigid cases, as these are, will develop from 95 to 99 per cent mechanical efficiency over long periods of years.

The same controversy—steam versus internal combustion engines—is raging at this time in the marine field. Motor ships of large size are coming off of the ways; these ships are carrying freight at faster speed, and lower rates than can be maintained at a profit in equal size steam driven ships.

In railway mechanical engineering, a recent locomotive for Canadian freight and passenger service, has two 1300 horsepower oil engines or a total of 2600 horsepower; each engine weighs 51,000 pounds and the locomotive weighs 660,000 pounds. Fuel consumption, when developing equal power as steam locomotives, ranges from one-fourth to one-fifth that of steam power.

Instead of mechanical transmission, these engines drive electric generators, which in turn, drive electric motors, and using direct current, the variable torque limitations of alternating current is eliminated.

Summing Up the Power Situation

Steam Power

Advantages	Disadvantages
Flexibility in speed-torque	Highest fuel cost
High starting torque	Highest water cost
Fast acceleration	Higher maintenance cost
Familiarity	Greater weight

Electric Power

Lowest water requirement	Constant running torque
Lower power cost	High starting current
High starting torque	Must be within reach of power line
Acceleration	Interruptions in current
	Unfamiliarity

Multi-Cylinder Gas Engines

Low fuel cost	Constant torque
Low water cost	
Acceleration	
Uses natural gas or gasoline	
Portability	
Low capital cost	
Familiarity—similar to automotive engine.	

Heavy Oil Engine

Low fuel cost	Constant torque
Low water requirement	Inflexibility
	Slow acceleration, or none at all
	Higher capital cost
	Expensive concrete foundation
	Flywheel inertia forces

Drilling Crews

Time studies in Oklahoma drilling, when handling pipe, show that round trips are made far faster in this district than elsewhere; the crews team up with exact precision, automatic cat heads break out quickly, and these rigs even have a foot lever at the driller's foot, which, when pressed, pulls the heavy kelly over to one corner of the rig.

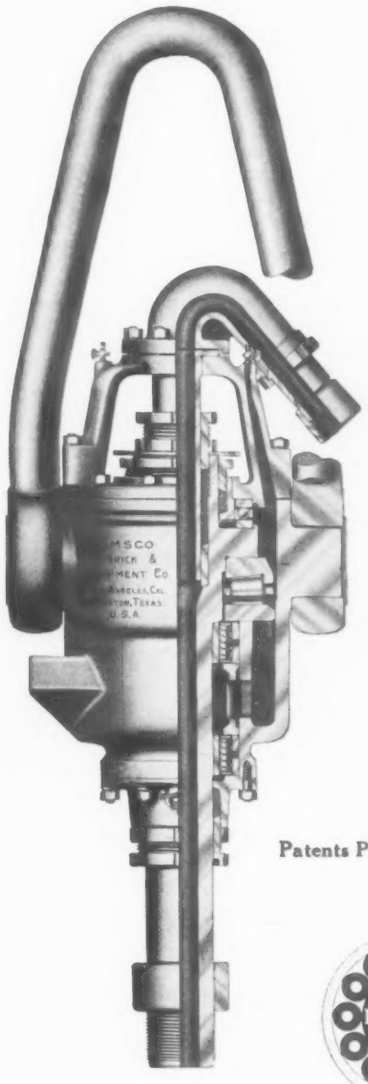
Rig Transport

The matter of hauling heavy boilers, weighing 30,000 to 35,000 pounds; pumps weighing up to 32,000 pounds, and smaller parts such as engine, draw works and rotary, is one of moment, particularly in wet weather. For the heavier loads, although trucks and trailers haul the same, many caterpillar tractors are in use. Where caterpillar tractors are used, it is frequently run up on to a truck and hauled back to the former location, if the same is distant, to secure dispatch.

All trucks are equipped with winches for skidding loads, and for placing heavy parts, such as a motor, each truck has an A frame, of steel pipe, shown in Figure 13 whereby a motor may be placed in exact position, using the truck winch.

The facility in handling heavy Oklahoma rigs has been gained by close attention to transport equipment, and the transport costs therefore are not

Forget about Overheated Bearings!



Patents Pending

Pour 10 Gallons of good oil in the EMSCO TYPE B OIL COOLED SWIVEL open the Air Vents and let'er go

GENERAL SPECIFICATIONS	
Capacity	250,000 lbs.
Diameter of Trunnions	5½ inches
Diameter of Bail	4 inches
Dia. where hook engages bail	4½ in.
Diameter Fluid Passage	3 inches
Oil Capacity	10 gallons
12 Cone Rollers	2⅜" Diameter
Hyatt Sleeve Bearings	

THE large oil jacket provides room for ten gallons of lubricating oil, more than triple the quantity formerly used. The oil jacket extends completely around the bearing body, and an air chamber is provided in the goose-neck and wash pipe supporting casting with openings at the top through which the heat is dissipated. *Write for Bulletin No. 31.*

All Emsco and D+B Products (Except Derricks) Sold Exclusively in Mid-Continent Fields by The Continental Supply Company

EMSCO STEEL EQUIPPED WELLS ARE SAFE

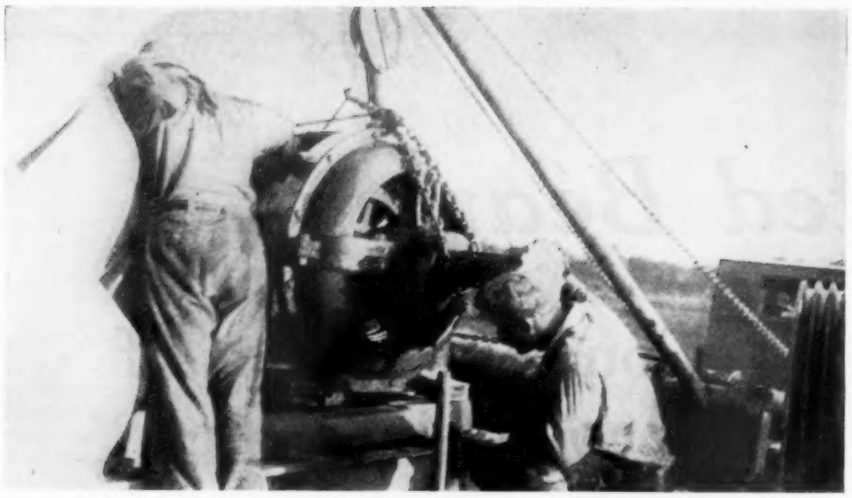


FIGURE 13
Placing a 200 horsepower electric motor, using truck winch

as high as one expects, judging from the heavy weights handled.

Lever Systems

The lever systems on these rigs have been all mounted on a single base plate for rapid dismantling, transport and erection without losing any parts.

The four speeds of the draw works are controlled by four banked levers at the driller's foot as shown in Fig. 14 and the rotary clutch lever is also in the same bank, forward. The latter lever stays in or out, while the draw works clutches are thrown out by spring return on the levers. When engaged these detnal clutches, being undercut slightly, will remain in engagement as long as loaded, and reversal is required to allow the springs to throw the clutches out.

The Spinning Line

The spinning line, for making up tool joints, may be interesting to those not using the same. A short length of manila rope is coiled and placed around the stand of pipe to be screwed on, at the time the tool joint pin is being placed in the box. The floor helper holds the outer end of rope around the pipe, cathead fashion, while the driller catheads the rope, screwing up the pipe fast, and, just before the joint makes up, an extra jerk on the rope spins the stand so fast that the joint makes up with a bump, tightening the joint as effectively as when tongs are used, but requiring no make-up tongs.

This method is very fast; it is not as safe as tongs, however, for the rope may catch the fingers, both on the pipe and on the draw works cathead.

But, when four-inch pipe is used, the spinning line is not effective, for four-inch pipe, being more flexible than six-inch and five-inch bends and whips in the derrick when spun so fast.

Therefore, in Oklahoma, using six-inch drill pipe, we find no make-and-break rotaries, while in other districts, where smaller pipe is used, the make-and-break rotary is used almost exclusively.

Incidentally, when breaking out pipe, coming out of the hole, Oklahoma practice places the tongs first, then the slips. In other districts this is reversed—slips first then tongs, but the Oklahoma method is speedier.

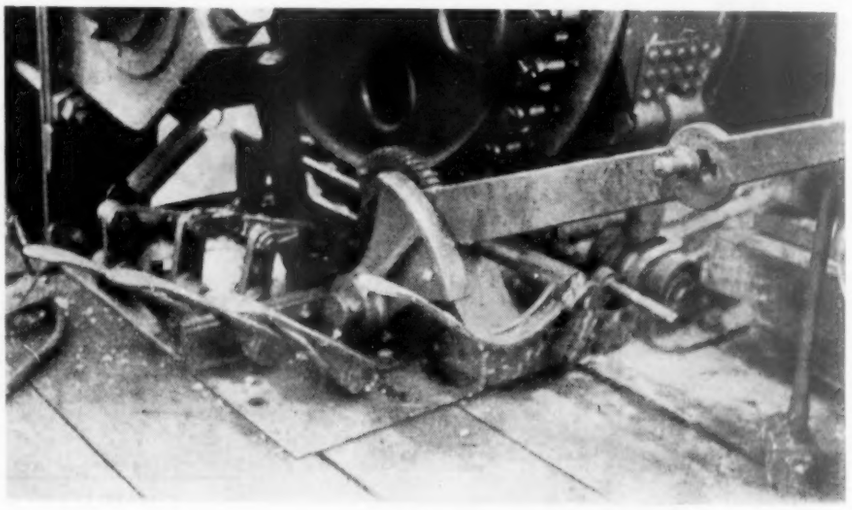


FIGURE 14
Compounded brake lever, mounted on same base with lower bank for rig control

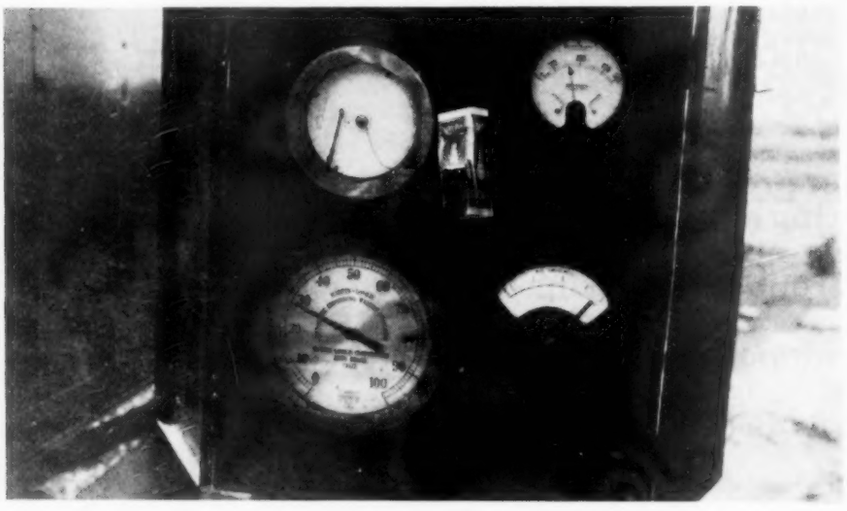


FIGURE 15
Indicating and recording control board on electric driven rotary rig

Control Board

Figure 15 shows a control board, mounted directly across the derrick in front of the driller, in a steel case with a steel door. The weight indicating and recording dials are to the left; ammeter for pump load is at the upper right, and ammeter for drilling motor is at the lower right.

Converting the amperage of the drilling motor into terms of torque, the driller knows the stress being placed in drill pipe, and a measure of control over this is set up on this board, with the weight on bottom as a measure of control.

Without automatic drilling control, such as the Hild electric or the Halliburton mechanical control, general practice in drilling is to hang a weight on the brake lever so proportioned that when the bit digs, the additional weight of pipe suspended slips the brake, ef-

The Audit Bureau *of* Circulations

Publisher's Statements and Audit Reports

Advertising has won for itself a place on this continent which it enjoys nowhere else and the advertiser and advertising agent and publisher members of the Audit Bureau of Circulations—and they comprise the dominating element in the advertising field of the United States and Canada—consider that this prosperity is based largely on the confidence fostered by this association.

National advertisers need deal with no publisher who fails to present a detailed and authentic survey of his circulation, bearing the stamp of the A. B. C., a stamp placed after impartial investigation. Most local advertisers are in the same position. The A. B. C. membership includes nearly fifteen hundred publications, circulating in every corner of the continent, north of the Rio Grande.

Through the A. B. C., a steady stream of circulation information is constantly flowing into the hands of advertisers and advertising agents. As of March 31 and September 30 each year, the newspaper members present sworn publisher's statements, giving their circulation statistics for the preceding six-month periods. The magazine, business paper and farm paper members present their semi-annual statements as of June 30 and December 31.

Fifty traveling auditors of the Bureau visit the publisher members once a year and examine the documentary evidence behind their circulation claims.

Audit reports present no opinions. They are based on documentary proof and are as accurate as it is humanly possible to make them.

With the semi-annual publisher's statements, checked and amplified by the annual audit reports, the advertiser can learn throughout the year fully and accurately just what A. B. C. publishers have to offer in the way of circulations when they solicit his business.

THE GULF PUBLISHING COMPANY

HOUSTON, TEXAS

Publishers

The OIL WEEKLY *The* PETROLEUM MARKETER

The REFINER & NATURAL GASOLINE MANUFACTURER

Our publications are all members of The Audit Bureau of Circulations. Our Circulation statements are verified by trained auditors of the Bureau.

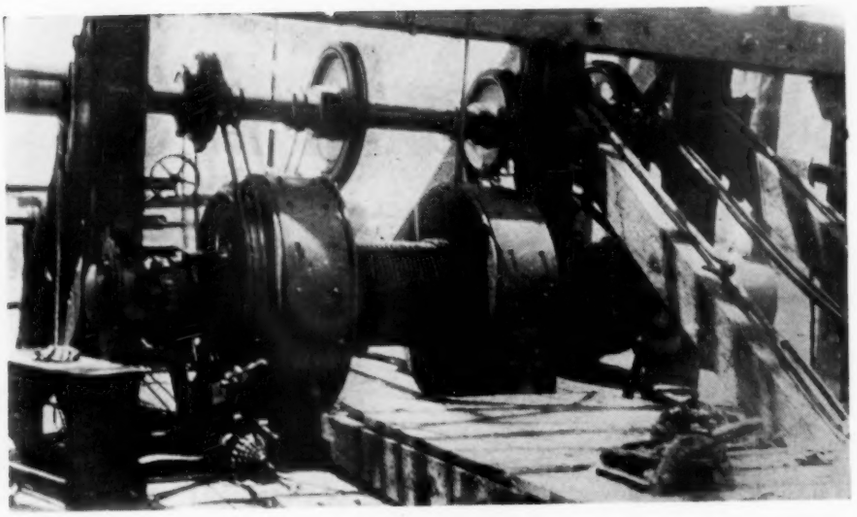


FIGURE 16
Automatic drilling control secured by hanging the weight of an old cutter on the brake lever

fecting automatic drilling control without the use of especial equipment. Because of the regularity in texture of of Oklahoma formations — relative regularity—this type of control is effective, relieving the driller materially, and at the same time, maintaining the desired weight, within close limits, on top of the rock bit.

In rough drilling, however, this form of control bounces the pipe, slipping the brakes, letting down excessive weight, requiring slight hand control until a rough place has been passed through by the bit.

The drilling control of Figure 15 has been used for years; in Oklahoma it has been developed to a high state.

Brakes

Quite naturally, brakes for the heavy loads set out above must be effective. As a general rule, as any type of brake is made larger, its effectiveness is lowered. Up to a short time ago, the brake, in rig design, was a "bottle neck" through which it was difficult to pass, not only as to effectiveness but also as to heating of the brake drum, for the heat generated in arresting a load of pipe is dissipated by the brake drum surface.

The braking effort—the manual effort of the driller—is the same as heretofore and, with the same advantage in leverage, as brake surface areas increase, the unit brake pressure per square inch decreases. Therefore, the compound brake has been introduced in the type shown in Figure 14. The difference between brakes is that the driller can drop a 50 ton string of pipe, and catch it, using one hand on the compound brake, while two men must come down to stop the same load without compounded brakes.

It may be argued that lowering pipe into the hole by practically dropping it, is unsafe; without the most effective brakes, it is, but with compounded brakes, the fact that no accidents could be located as to this part of drilling, points to the utility of effective brakes, and to safety through effectiveness.

As used in Oklahoma today, the spinning line for making up tool joint threads is highly efficient, safe and rapid. Objections made in other districts where the line is not used, are based on a misconception of spinning line practice, and why the line may be used in heavy work and why it may not be used in light work.

Six-inch drill pipe, being stiffer, does not whip around up in the derrick when being spun up, while four-inch pipe, used in other districts, being more flexible than six-inch cannot be spun so easily, or so fast. Four-inch pipe, being smaller in diameter, requires a heavier pull than the larger six-inch, which places four-inch at a further disadvantage.

In other districts, the spinning line is objected to because of the impression that it burns the tool joints. As practiced, spinning up pipe injures tool joints less than any other method, and the writer attemepts to explain the same below.

The torque developed by the spinning line is low—far lower than that which may be developed by the rotary, steam driven. Hence, when spinning pipe up, the tool joint must have a light running fit while it is screwing up. If the pin, traveling downward, into the box, pulls the traveling block down, the joint tightens, but the slack necessary is allowed by the driller. And, the light running so secured develops so little friction that the joint makes up very fast without smoking.

Further, when spinning pipe up, it is not rotated at maximum speed, but is rotated reasonably fast, until the joint is almost made up, when there is a slight pause, followed by a jerk on the line, which bumps the joint together so tightly that no tongs are required. Thus made up, these joints do not back off in the hole.

On the other hand, when making up a joint with the rotary, if the necessary slack is not provided as the joint screws up, excessive friction develops, and the joint may smoke, for the rotary is far more powerful than the spinning line when screwing up pipe.

The foregoing explains, the writer believes, why the make and break rotary has made no progress in Oklahoma, and why it is used almost exclusively in other districts.

It might also be mentioned that in Oklahoma practice, coming out of the hole, the tongs are placed first, then the slips. Drill pipe is racked between the rotary and the draw works, with the rack at the same elevation as the rotary table.

Manila rope lengths are nailed on top of the rack, and the tool joint pins are set on the rope, to allow mud to drain off.

Dividends of Standard Oil Group Break All Records

New York.—Cash dividends disbursements by companies of the Standard Oil group in the third quarter of 1929 will amount to $65,409,901, against $50,068,102 in the same quarter of last year. Figures compiled by Carl H. Pforzheimer and Company, New York, show that for the nine months ended September 30, 1929, there will have been paid out a total of $194,564,998, as against $156,689,978 paid in the corresponding period of last year. The third quarter, 1929, dividends are smaller than those paid in the second quarter, but they exceed payments in the third quarter of 1928 by $15,341,799.

In the third quarter of this year, Indiana Pipe Line Company distributed $2,000,000 as a special payment, along with regular quarterly dividends, when the capitalization and par value of the company's stock were reduced. Prairie Oil and Gas Company, by resuming dividends, added $1,805,250 to the quarterly payments. This is the first quarterly dividend payment made by Prairie Oil and Gas Company since August 1927. International Petroleum Company, which doubled its share capitalization in June, paid the former rate on the increased number of shares, thereby adding $1,780,886 to its dividend disbursements. Ohio Oil Company added $600,000 to quarterly dividends by paying an extra of 25 cents a share, along with the regular dividend of 50 cents.

The record of quarterly dividend disbursements since dissolution follows:

	First Quarter	Second Quarter	Third Quarter		Fourth Quarter	Full Year
1929	$63,101,701	$66,053,396	$65,409,901	1928	$62,050,357	$218,740,335
1928	48,927,670	57,694,206	50,068,102	1927	55,804,755	213,698,223
1927	55,873,413	54,291,615	47,728,440	1926	62,685,548	200,327,594
1926	40,580,317	50,618,451	46,443,278	1925	42,104,169	153,506,099
1925	34,355,618	41,905,728	35,140,584	1924	40,000,286	150,388,555

[THE SECOND OF A SERIES OF EIGHT AD-ITORIALS ON OIL]

The First Oil Well and Pithole City

In 1850 James Young patented a process which he used in extracting oil from Scotch shales which are still being worked. Although the profits from the process soon mounted to $1,500,000 a year, Drake's discovery that crude petroleum could be produced in large quantities by drilling wells was nevertheless the beginning of the modern oil industry.

Drake at first experimented with long trenches and pits to draw in the oil but with small success. He finally decided to bore straight into the ground. On the afternoon of August 27, 1859, the well had reached a depth of 69½ feet and the crew stopped work for the day. When they returned the next morning the well was nearly full of oil.

Although the uses of oil were very limited in those days, it was realized that a great new route to wealth was opened and a great new industry was born. Mushroom cities sprung up, the most famous being Pithole City, a few miles from Titusville. The first pipe line was from Pithole City to the nearest railroad, four miles away. Petroleum prices fluctuated violently from as low as ten cents a barrel.

What was once Pithole City where 30,000 adventurers rushed over well nigh impassable mountain roads, just one building remains today — a frame church in which the big bell hangs silent. There is a faint chug-chugging of a gas engine pumping a few barrels a day from the last well that attests to the former glories of Pithole City.

With the growing uses for oil there came about the era of discovery and expansion bringing in the vastly greater production in a score of other states. Today the petroleum industry ranks second in America only to agriculture.

The First National Bank
1st IN HOUSTON
HOUSTON · · · TEXAS

Safe Indoors and Out

Wagner Air-jacketed Motors are totally enclosed and sealed against corrosive gases, moisture and dust . . . they are thoroughly cooled with a jacket of air kept in motion by an external blower, protected by a special housing. These motors are in the field, in refineries, on pipe lines, and although not approved for Class I service (N. E. Code), they are used in gasoline plants.

Wagner builds every commercial type of a.c. motor and can recommend without prejudice the proper motor for the job.

Literature on Request

Wagner, Quality

WAGNER ELECTRIC CORPORATION

6400 Plymouth Ave., St. Louis

Sales and Service in 25 Principal Cities

PRODUCTS . . . FANS . . . DESK . . . WALL . . . CEILING
TRANSFORMERS . . . POWER . . . DISTRIBUTION . . . INSTRUMENT
MOTORS . . . SINGLE-PHASE . . . POLYPHASE . . . DIRECT CURRENT

61-7852-1

Factors *Effecting* Footage Costs *on* California Deep Wells

By BRAD MILLS
Staff Representative

A COMPARISON of the costs of drilling wells in the Santa Fe Springs, Long Beach, Ventura and Kettleman Hills fields, and a thorough study of the reasons for wide variations in total drilling costs in the different areas disclose how any one of a dozen factors may double or cut in half the usual expense incurred in the average field. These comparisons, when placed opposite the costs of 10 years ago, show unmistakably that the average cost per foot is much higher and that the desire to obtain production in the quickest and safest manner has taken precedence over the old haphazard method of drilling with the least possible expenditure, even if drilling time was doubled.

One phase of drilling deep wells in California today may cost more than a completed well of 10 years ago. Casing and tubing are often responsible for a total greatly in excess of the sum set aside for the completion of a 3500-foot producer in a proven field of the older vintage, while "labor and expense" often runs far above $100,000. Some of the minor details of drilling are now costing more than many of the major items of several years ago.

Depth, terrain, time, casing, labor, expense, rig, amount of coring, formations, fishing jobs, crew, supervision, location, change of mud, water supply, type of bits and many other items play important roles in the total cost of wells in the fields under discussion. Each of these items has so many ramifications that a long list of items are necessarily listed after each major division.

High Cost of Economy

Experiments as to the reasons for various costs has disclosed that in some fields wrong methods have been employed. While coring, as an example, has proven very expensive, the lack of it has resulted in a blowout more than once. Light casing has been substituted for heavier with disastrous results. Speed has been substituted for caution and the cost materially increased by fishing jobs or crooked holes.

In determining the cost of a well, various companies have used slightly different methods. Where investment begins and expense items end has long been a dividing line difficult to find. The capital or investment account must necessarily include such items as casing, rig irons and equipment which is not lost with one drilling operation. What constitutes an expense item is often a matter of opinion, but the main point is to charge all items lost in drilling to the well as expense. In either case, however, the cost of the well will reflect the charge. It is not unusual to charge a percentage of the total cost of equipment to the well as a penalty for its use.

Greater Depth Means Greater Cost Per Foot

The cost of drilling in each of California's premier oil fields is roughly proportional to the depths. It often costs more to make the last 1500 feet of a 7000-foot hole than to reach the 5500-foot level. Labor and expense and casing count fastest below 5000 feet, while the cost of surface equipment remain practically the same. The time element eats deeper into the picture as the hole deepens.

As depths increase, the average cost per foot of the entire hole naturally increases. This rate of increase varies sharply in the different fields and it is here that the major items assert themselves.

It is impossible to measure the human element in the cost of drilling wells in any field, but large companies claim that it is one of the most important phases of the total. Disloyal crews often are responsible for expensive fishing jobs, while many holes have been lost entirely by bolshevik tendencies of a single driller. It will never be possible to remove the human element, but this phase may be weeded out by careful checking.

In arriving at the average cost of all wells drilled in a certain field, it might be fair to take the wells lost and spread this charge out among those successfully completed. This is practical, however, only when a field or a large company's operations are considered. In some fields it is not unusual to lose one well in 10, while in others one in 15 is a better average. In dealing with individual costs in this article, actual expenditures only are included.

Ventura was the first field to be developed extentively below 7000 feet. This great oil producing area startled the world with individual well costs in excess of $200,000 and probably was the first district in the world to show such a high cost per foot of drilling. It had become the custom in California to figure as high as $20 per foot for drilling, but a considerably higher average was responsible for wide comment.

This field has its own peculiarities and many are responsible for the high cost per foot of drilling the 7600-foot producers. Experience has been a costly teacher and only the best equipment is used. Operators are particularly careful to use new and heavy materials on all wells. Depreciation is accordingly higher than on the lighter equipment and actual replacement is not unusual.

The unusually rugged surface at Ventura is responsible for an appreciable cost, even before the rig is built. Grades for rigs often run into thousands of dollars, while roads are a major item. These items are completely eliminated in such fields as Santa Fe Springs.

Items That Cost

Wear and tear on drill pipe takes a heavy toll, necessitating frequent changes. Twistoffs were so common in the early development of the field that it has been found more economical to replace the drill pipe with new at surprisingly frequent intervals.

Dip of formation and its hardness are

DRILLING COSTS OF REPRESENTATIVE WELLS

Field	Rig and Irons	Casing and Tubing	Rigging Up	Labor and Expense	Bringing In Well	Total Cost	Depth	Average cost Per Foot
Santa Fe Springs	$7,535	$44,050	$1,829	$81,835	$253	$135,503	5,757	$23.54
Santa Fe Springs	6,260	34,805	1,231	73,432	153	115,881	5,091	22.76
Santa Fe Springs	8,550	65,350	1,550	124,130	550	200,130	8,002	25.01
Long Beach	7,072	35,936	608	72,416	110	120,888	6,813	17.75
Long Beach	8,365	39,680	3.16	83,793	437	127,847	7,032	18.18
Ventura	8,550	37,680	1,125	105,389	735	154,479	6,650	23.23
Ventura	8,787	44,750	1,275	142,278	890	197,980	7,600	26.05
Santa Fe Springs	7,842	54,625	1,050	103,258	365	167,140	6,850	24.40
Kettleman Hills	11,380	78,980	2,050	154,050	3890	250,350	7,200	34.77

Safe Indoors and Out

Wagner Air-jacketed Motors are totally enclosed and sealed against corrosive gases, moisture and dust . . . they are thoroughly cooled with a jacket of air kept in motion by an external blower, protected by special housing. These motors are in the field, in refineries, on pipe lines, and although not approved for Class I service (N. E. Code), they are used in gasoline plants

Wagner, Quality

Wagner builds every commercial type of a. c. motor and can recommend without prejudice the proper motor for the job.

Literature on Request

WAGNER ELECTRIC CORPORATION

5400 Plymouth Ave., St. Louis

Sales and Service in 25 Principal Cities

PRODUCTS FANS CEILING
TRANSFORMERS POWER INSTRUMENT
MOTORS SINGLE-PHASE CURRENT

Factors *Effecting* Footage Costs *on* California Deep Wells

By BRAD MILLS
Staff Representative

A [illegible] in the costs of drilling wells in the search for [illegible] Long Beach, Ventura and [illegible] with [illegible] with a thorough [illegible] of the reasons for wide [illegible] in drilling costs in the different areas. [illegible] how an error in a few factors may double or even triple the total cost [illegible] in the drilling field. These [illegible] when placed opposite the [illegible] of 10 years ago, show considerably [illegible] the average cost per foot is much [illegible] and that the depth to which [illegible] is the quickest and most economical [illegible] taken precedence over the old haphazard method of drilling with the most [illegible] expenditure when a drilling time was [illegible].

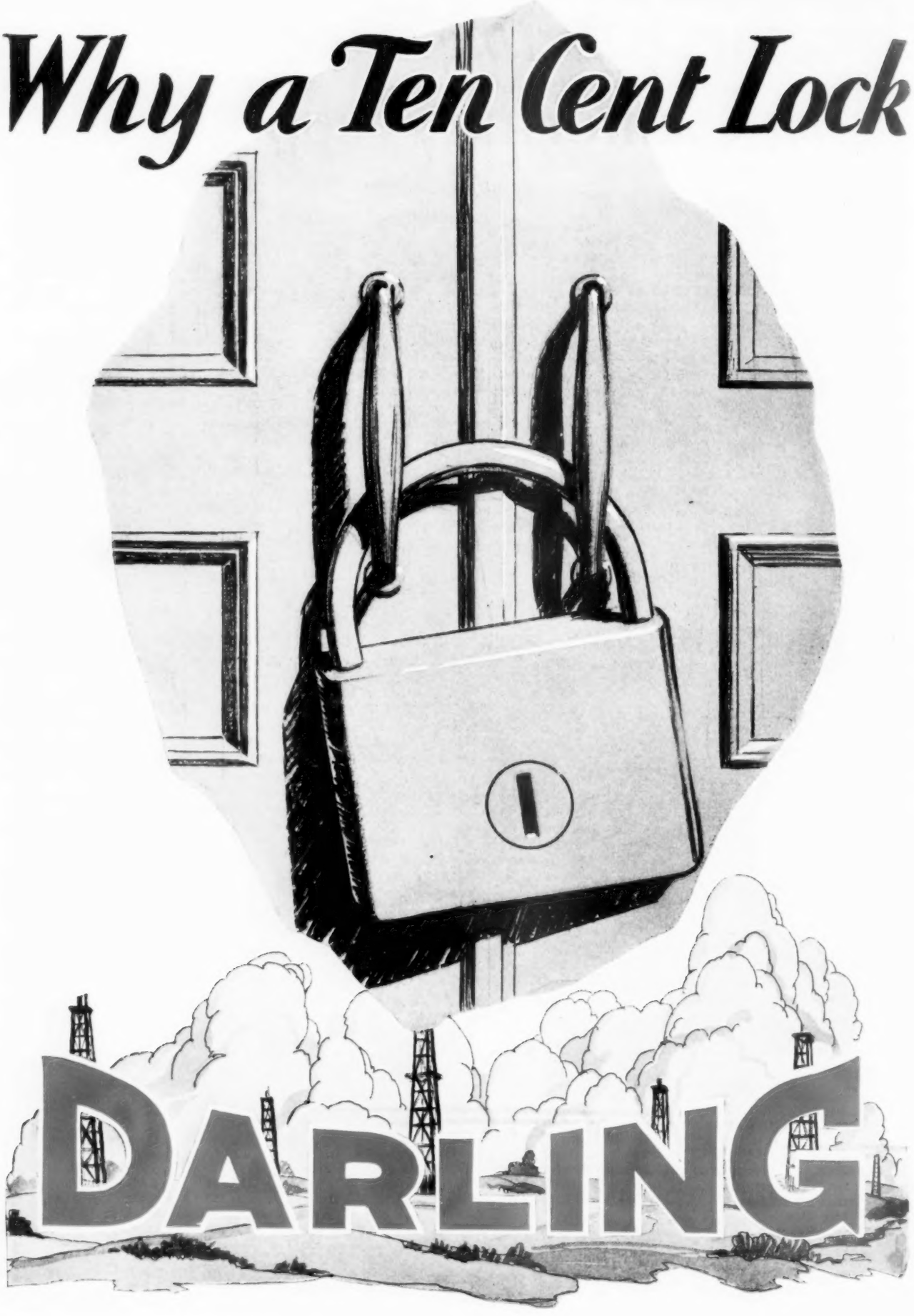
[illegible] drilling deep wells in California today may cost more than a [illegible] well 10 years ago. Casing and tubing are often responsible for a [illegible] it comes to the sum [illegible] the completion of a 7,000-foot producer in a proven field in the [illegible] while "failure and expense" [illegible] to about $100,000. Some of the other details of drilling are now costing more than many of the major items of [illegible] years ago.

[illegible] casing, tubing, expense, [illegible] cementing, reclaiming, hiring [illegible] crew, supervision, heating, [illegible] water supply, type of rig and many [illegible] items are important units in the [illegible] cost of wells in the fields under discussion. Each of these items has a [illegible] fundamentals that, if [illegible] or [illegible] unnecessarily boost [illegible] each [illegible] of them.

High Cost of Equipment

[illegible] of the causes for [illegible] can [illegible] be traced to some [illegible] wrong method. Here [illegible] equipment [illegible] drilling [illegible] the [illegible] [illegible] expensive. [illegible] [illegible] [illegible]

Why a Ten Cent Lock



DARLING

on a Bank Building?

IF your banker locked his bank doors with ten cent locks you might question his economy. Isn't the same true in protecting your oil? Anything less than the best and safest gate valve means extravagant risk.

Employ Darling Gate Valves everywhere. There is one for every purpose. The revolving discs seat in a different position each time the gate is closed, insuring even wear and tight closing.

Darling Valve & Mfg. Co.

Williamsport, Pa.

New York Chicago Oklahoma City Houston

Mid-Continent Distributors:

Frick-Reid Supply Corp.
International Supply Co.

Atlas Supply Co.
Petroleum Supply Co.

California Distributor:
Petroleum Equipment Co., Los Angeles

Darling Forged Steel Gate Valve for drilling well control, flow lines, and other hazardous conditions.

Darval Semi-Steel Gate Valve. Made in all sizes for general field use, pipe lines, drilling through, well control and flow lines.

difficult problems to overcome and require time and care.

Changing of mud is one of the most expensive single items in drilling at Ventura, especially after the oil sand is tapped. The action of the gas cuts the mud and lightens it so quickly that it is difficult to retain its consistency without the use of some heavy agent. Making and hauling mud is naturally an expensive operation in such a rugged field and the rapid changes add considerably to the time of drilling.

Coring is a very vital, even if expensive, operation and adds to the cost from two angles. The extra time consumed by this method is a factor, but the fact that much reaming has to be done instead, is equally important. Locations are a considerable distance apart in this field and coring can hardly be eliminated. Every hole must be cored continuously for all shutoffs and coring for bottom is the general practice. The formations are not as uniform as in such fields as Long Beach, while the difference in elevation may result in some confusion when the top of the sand is expected.

Casing is a major item in the total cost at Ventura and often runs more than one-half of the total well cost. Casing in an average well includes a string of 20-inch at 700 feet, 13⅜-inch at 4200 feet, nine-inch at 6000 feet and 5¾-inch on or near bottom. In addition, a string of three-inch tubing is run to around 5000 feet.

As proof that too rapid drilling will result in a high percentage of crooked holes, it may be cited that troublesome deviations at Ventura are fewer than in fields which are easier drilled but which have been developed with all possible speed. With hard, slanting formations, fewer crooked holes have resulted than at Santa Fe Springs, where the formations are more uniform.

Cost of drilling at Santa Fe Springs has been higher than original estimates showed. Speed resulted in a bunch of crooked holes and it was not until several wells had to be plugged back and a few had blown out that a more conservative program was inaugurated. The average Nordstrum zone well completed at around 5200 feet cost about $120,000, or approximately $23 per foot. Buckbee zone wells were a trifle more expensive, average about $23.50 per foot. These wells were completed at about 5850 feet. O'Connell zone producers were drilled to about 6850 feet and cost about $24.50 per foot. The Clarke zone wells are being completed at 8000 feet and are costing on an average of $200,000, or $25 per foot. The uniformity of average costs per foot at Santa Fe Springs is unusual and is one of the few fields where an extra thousand feet of hole may be made at only a moderate increase over the preceding thousand feet.

Elimination of one string of casing in many of the deeper producers has helped to reduce the cost of the last 1500 feet. Particularly was this true in some of the O'Connell and Clarke zone wells which avoided a shutoff over the Buckbee zone.

A few wells at Santa Fe Springs have been successfully completed after plugging back, while on more than one occasion good wells have been placed on production after the hole had been plugged back twice. This procedure ran the cost of these wells to a very high figure—probably $32 per foot.

The average cost per foot has been much higher during the deep sand development than during the drilling of the shallower sands, although many of the older wells were carried to 4200 feet. This increase was expected, but the wide variation may be traced to the heavier equipment and casing, increased coring and general application of modern methods.

The Clarke zone producers were the first in the Los Angeles basin to run consistently around $25 per foot, or $200,000. Much pioneering was necessary in drilling for this zone and it may be possible to reduce this cost on inside wells. Coring and reaming counted heavily, while casing was an extremely heavy item. At an average cost of $25 per foot, these wells must be large producers to reimburse their owners and return the expected profit within a reasonable time.

Casing and tubing costs at Santa Fe Springs often run above $50,000 and include only the very heavy grades. Some of the more expensive wells drilled to the Clarke zone have included a string of 20-inch conductor pipe at 1000 feet, 13⅜-inch over the Meyer at 4200 feet, nine-inch at 6400 feet over the O'Connell and 4¾-inch over the Clarke at 7800 feet. Most wells carry a shutoff over the Buckbee at about 5600 feet.

Long Beach Has Lowest Cost

Long Beach has the lowest average cost per foot of any field in the state producing from below 7000 feet. Several reasons are responsible for this rather low cost, among which are uniformity and softness of formations, freedom from blowouts, accessibility, knowledge of drilling under various conditions, casing pressure, limited amount of coring, weight of casing and speed of drilling.

The average cost of drilling at Long Beach approximates $18 per foot, with actual costs running from $15 to $28 per foot. Drilling a 7000-foot producer for $18 per foot has been considered quite an achievement in many circles, but much lower averages have been turned in.

Crooked holes do not seem to cause as much trouble at Long Beach as in other fields, although surveys have shown that they exist in abundance. The formation does not cave readily, making it possible that this feature allows casing to be run readily. Cost of earlier wells was increased materially from crooked holes, but with the passing of the rush less trouble has been experienced from this cause.

Old equipment has been used extensively at Long Beach, the net result having been a distinct saving. This procedure, on the other hand, has been the direct result of many expensive fishing jobs. It is doubtful whether this saving has been as great as advertised by over-zealous operators.

In arriving at the average cost of wells in the Kettleman Hills field, totals of 10 years ago appear insignificant. The discovery well in this great light oil producing district cost about $325,000, but many troublesome fishing jobs and the penalty of pioneering made it an unrepresentative test from almost every angle.

Several wells have now reached 7000 feet and it is possible to gather reliable figures on the average total costs. A recently completed well cost considerably more than $250,000 but it should not be considered a strictly representative producer. One drilling well which has not yet been completed has cost only $175,000 to date, although it is considerably below 7000 feet. Not a single fishing job has hindered its progress, however, and it is considered a very cheap well.

Everything Costs at Kettleman Hills

When a superintendent was asked the chief reasons for the excessive cost of drilling in the Kettleman Hills field, he answered, "Everything." He was trying to convey the idea that everything that was done in this field cost considerably more than in other fields. A careful survey proved this to be true. Isolation, bad roads, caring for men, delicate fishing jobs, waiting on tools, the constant vigil in keeping the drilling mud heavy below the top of the gas sand, special grades of casing, the very hard formations, expense of coring and a dozen other items assume large totals before the well is completed.

One operator has made a special study of casing and has run its individual well costs in this respect to a very high figure. The very finest alloy steel is used, partially accounting for a cost of nearly $80,000 in more than one well.

There are three outstanding casing programs in the field, all of which have been used at least once. One calls for the following:

Size	Run To	Weight	Approximate Cost
18⅝	1200	86.5	$6.96
11¾	5000	60-68	4.75
8⅝	6200	43	3.30

In addition to the above, it is planned to run a 5¾-inch oil string to bottom if necessary.

Tubing, which is usually included with the casing cost, has been run in the two wells completed since the discovery well blew in. The general program calls for 2½-inch at about 6500 feet.

Another casing program calls for 20-inch at 1000 feet, 13⅜-inch at 4500 feet, nine-inch at 6200 feet and a 6⅝-inch oil string at 7200 feet. A third program, and one likely to be used considerably includes 20-inch at 1500 feet, 13⅜-inch at 5000 feet, 9⅝-inch at 6200 feet and a 6⅝-inch oil string at about 7200 feet.

As previously stated, every phase of drilling at Kettleman Hills is very expensive. Nothing is trusted to luck and operators must be on the alert at all times. When this tension is transferred to the ledger, a very high average cost per foot is reflected. Many wells will cost $300,000, it is believed, one large operator having already spent almost this amount on each of two drilling wells. It may be possible to reduce this cost after the pressure has been lowered, but it is believed that the average will not fall far below $250,000 during the early life of the field.

EMCO

ORIFICE METER

Four years ago the Equitable Meter and Manufacturing Company purchased the Equitable Meter Company, a thirty year old organization building gas meters and regulators. Plans were immediately laid to do extensive research and experimental work in producing an Orifice Meter.

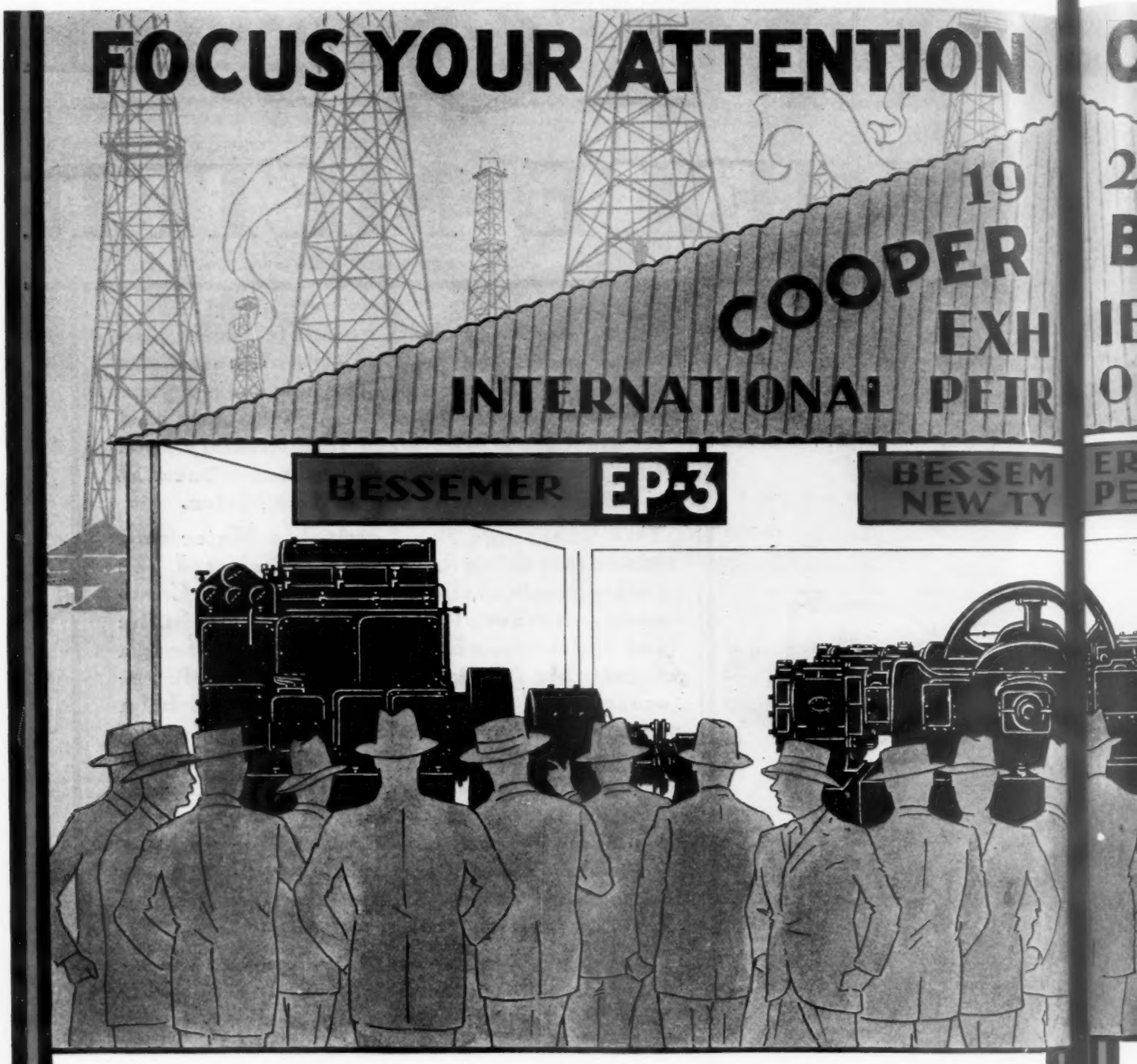
Two years ago the Equitable Meter and Manufacturing Company purchased the entire assets of the Pittsburgh Meter Company, another pioneer manufacturer in the gas industry, and formed the Pittsburgh Equitable Meter Company. Valuable research and experimental work had been carried on by this company in producing the Westinghouse Orifice Meter. The combined efforts of engineering departments of these two plants with years of actual experience—unlimited research—and an up to date factory with modern equipment for manufacturing have resulted in the EMCO Orifice Meter.

The meter will be displayed at the International Petroleum Exposition, Tulsa, Booths 35 and 36, Scientific and Technical Bldg. You are cordially invited to visit our display and inspect for yourself the EMCO Orifice Meter.

PITTSBURGH EQUITABLE METER COMPANY

MAIN OFFICE AND WORKS PITTSBURGH, PA.

NEW YORK CHICAGO COLUMBIA, S.C. LOS ANGELES DALLAS
TULSA SEATTLE KANSAS CITY SALT LAKE CITY



THE engines chosen for exhibit this year represent three of the important phases of gas and oil field engine service.

Bessemer Type-OF engines have been one of the leaders in pumping and drilling work. The new type on display, however, is radically different from the one so well known. Because of the many improvements it was necessary to change the design itself.

In many fields for gas compressor service Bessemer Type-10's have been considered standard. After careful observation of this engine in operation certain changes were decided upon. The engine on exhibit is so different that it is called the new Type-10.

ON THIS NEW ENGINE TRIO!

Nearly as important as the main engines, are the auxiliary power units. The dependable performance of Bessemer Type-EP-3's has established their reputation for this service. The engine, which is a full Diesel, direct drives the electric generator. This unit will be new to many oil and gas field men.

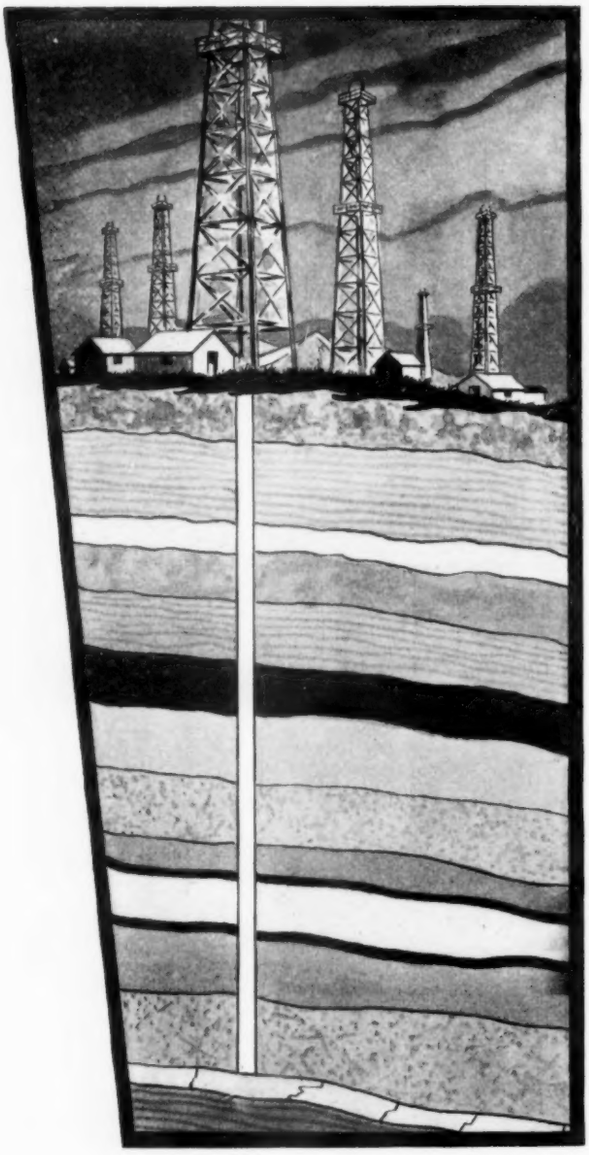
There will be many interesting exhibits at the exposition but few will have the focus of attention of these improved engines.

THE COOPER-BESSEMER CORPORATION

Formerly The C. & G. Cooper Company and The Bessemer Gas Engine Company

Mount Vernon, Ohio Grove City, Pa.

Branch offices in all principal oil and gas fields



Keep your bits where they belong

Working bits on the bottom of the hole mean less time consumed by expensive fishing operations and lower drilling costs.

Bits made from ASCO Steel will hold temper and operate when other tools must be pulled and drilled. Here minutes saved are dollars gained and working bits are the boon of the experienced driller who is careful in the selection of steel that goes into his drilling tools.

ASCO Steel is made to withstand severe abrasion without loss of temper through the toughest rock formations.

Specify ASCO Steel for your next lot of drilling tools—keep them drilling—check the results—there is a difference.

THE ANDREWS ASCO STEEL CO.
NEWPORT KENTUCKY

McLeod 4 giving exhibition for visitors to Calgary convention

Calgary Convention Visitors *Learn About* Canadian Oil

By Staff Representative

CALGARY, Alberta, Canada.—Canada is a big country, larger than the United States. It would be strange, indeed, if a lot of oil is not found in Canada some day. Alberta is a big province, 750 miles long and 400 miles wide at the widest point. Alberta has two oil fields and several natural gas fields.

If the Canadians are not successful in their nation-wide search for oil, especially in Alberta, it will not be their fault. Canada as a country is oil mad. The people have gone crazy in a stock buying orgy. So far no one has been hurt very badly because the bubble has not burst. It is different from any other stock-selling booms as a great deal of the money is actually being spent in development work.

The buying of stocks is not altogether from a selfish desire on the part of the people to get rich. It is deeper seated. The Canadians are patriotic. They want their own supply of petroleum. They are tired of importing crude petroleum to run their refineries. They know the extent of their country and believe that they have oil of their own if they will only go after it. That is just what they are doing—going after it.

Alberta is taking the lead. With a truly wonderful field at Turner Valley to point the way, tests are being drilled in many widely separated localities in an orderly search for oil. A great deal of money is being spent, much of it wisely. Tests are located on expert geological advice. New and modern equipment capable of doing the work is in use. If oil is not found, it will be because it is not there.

This almost nation-wide interest in oil is one reason why the joint convention of the newly-organized Alberta Oil & Gas Association and the Montana chapter of the Rocky Mountain Oil & Gas Association, the first international oil meeting on the western hemisphere, was such a success. While the convention was not as large as many held on the other side, there was no lack of interest and it was a success in many ways.

The first session of the convention was called to order September 19, in the Palliser Hotel. There were delegates from nearly every state in the Rocky Mountain region, with a sprinkling from other states, such as California, Washington, Oklahoma, Texas, Pennsylvania, Missouri and representatives from British Columbia and Saskatchewan.

W. S. Herron, president of the Alberta association, called the meeting to order. The address of welcome was given by the mayor of Calgary, the Honorable F. E. Osborne. He told something about Calgary and the petroleum prospects in the province.

After the address the members of the Alberta association drove the visiting delegates to the Turner Valley oil field about 40 miles southwest of Calgary. The drive was over a good gravel highway, part of which has been completed this year. The cars passed through Okotoks, the nearest railroad station to the field, where several of the supply stores have warehouses and pipe yards. Before the Turner Valley development there were only a few houses and now it is a place of perhaps 500 people.

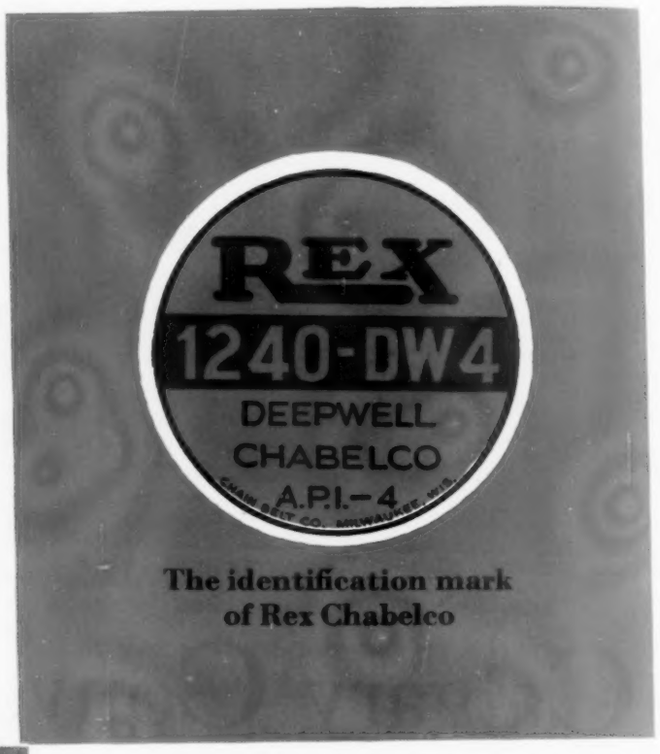
Plan to Conserve Turner Valley Gas

Just before the field is reached, the visitors passed through a typical oil camp, the town of Black Diamond, where quite a number of oil field workers are living because of school advantages and freedom from the natural gas saturated air in the Turner Valley field proper.

In Turner Valley field approximately 250,000,000 cubic feet is being burned daily in flambeaux. In order to get the oil, the gas has to be produced. While the town of Calgary gets its fuel supply

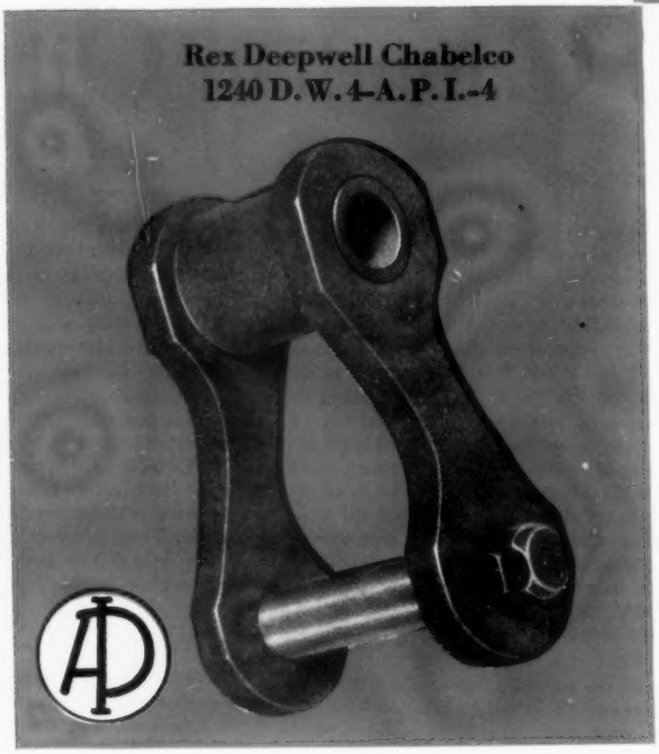
Extending the ACCURATE FORCE

to the LAST POSSIBLE POINT



The identification mark of Rex Chabelco

With the new REX SOLID COTTER



The new Rex Solid Cotter—the *final part* assembled to form the Rex Unit Link—now becomes the *final force-fit* in this accurately made chain.

The new solid cotter is correctly put in place by the slow, sure stroke of pressure recording machinery—it Cannot Rock; Cannot Break; and Stays in Place ALWAYS.

It fills up the pin hole *all the way through*, locking the pin securely and permanently into the sidebars.

It ends the trouble of flying cotters, and the inconvenience of riveted chain.

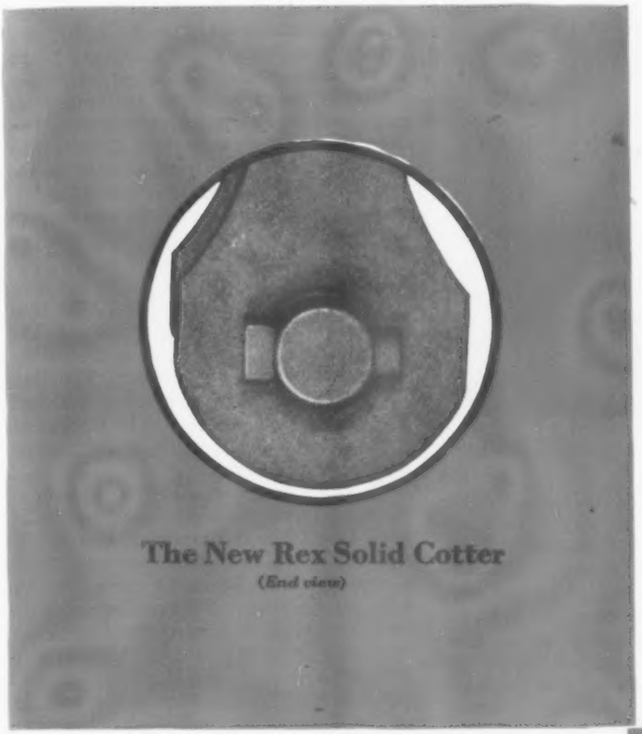
CHAIN BELT COMPANY
1310 Second National Bank Bldg.
Houston, Texas

Large Stocks in All Active Oil Fields

REX Reg. U. S. Pat. Off.

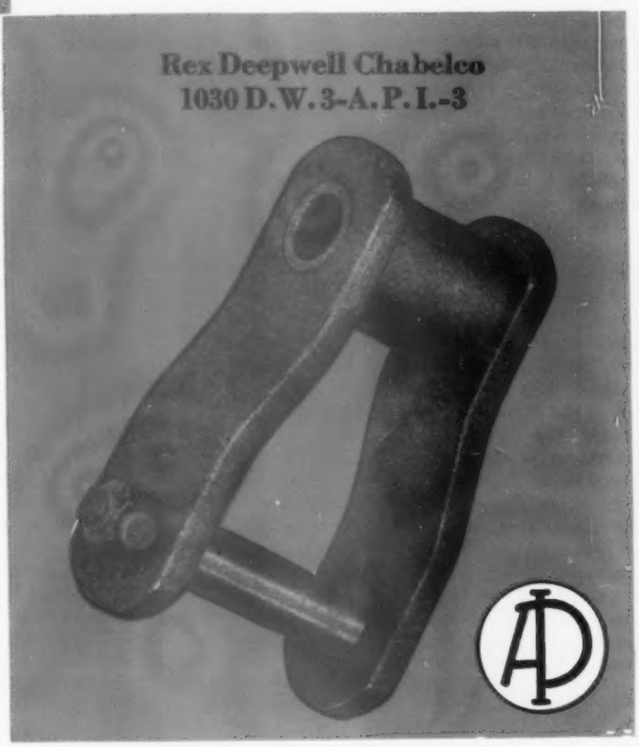
DEEP WELL

FIT of REX CHABELCO



The New Rex Solid Cotter . .

CANNOT ROCK . .
CANNOT BREAK . .
STAYS IN PLACE . .



The accurate force-fits between Ground, Seamless Bushings and Case-Hardened Pin; between Bushings and Seamless, Alloy Rollers—and the close tolerance in pitch between Sidebar working surfaces—all combine to give Strength, Hardness and Precision to the Unit Link that Stays a Unit.

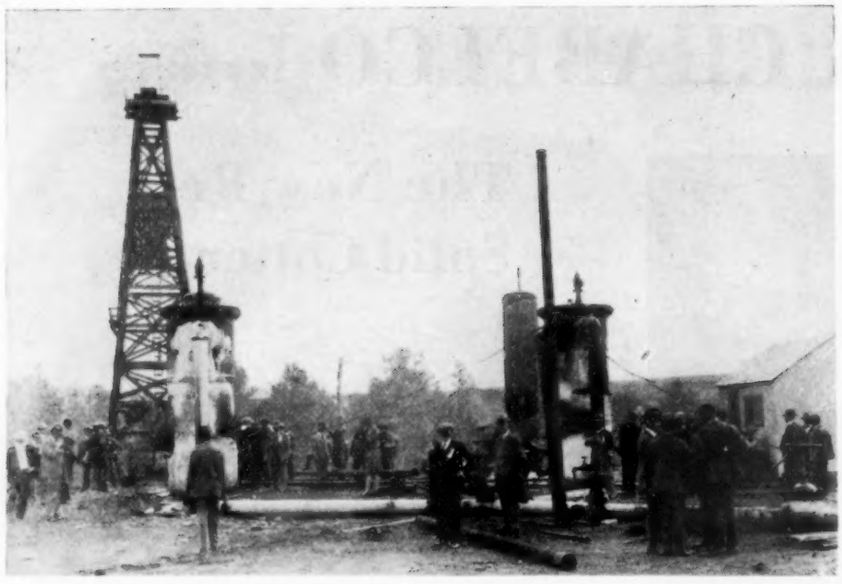
Rex Deepwell Chabelco, 1030 D.W. 3, A. P. I.-3 and 1240 D.W. 4-A. P. I.-4, is now, more than ever, The Greatest Chain That Ever Hit The Oil Fields.

The new Rex Chabelco folder tells the story. Send for a copy today.

739 Park St., MILWAUKEE, WIS.
1414 Santa Fe Avenue
Los Angeles, Calif.

CHABELCO

The Greatest Chain That Ever Hit the Oil Fields



Home Oil Company's No. 1 at Turner Valley being inspected by convention delegates

from the Turner Valley field, there is not enough demand to utilize all of the gas, so it is burned. The oil companies are co-operating with the Canadian dominion and provincial governments in formulating a plan to conserve this gas. A market could be found in the states, but there is a government embargo against exporting gas. The plan which seems to meet with the most popular approval is a pipe line to Winnipeg. Such a line would be more than 800 miles long and would cost between $35,000,000 and $50,000,000. The manufacture of carbon black has also been discussed, but it seems that there is not a very extensive market for carbon black in Canada and the tariff in the United States precludes a sale of it at a profit in that country.

The Turner Valley field is unique. It is right up against the eastern edge of the Canadian Rockies. The log of one well is no criterion for the drilling of an offset. Wells at shallow depths produce heavy crude, and below 5000 feet in the lime, naphtha. Even in the lime, some produce from near the top and some 1500 feet in the formation. No one has drilled through the lime.

Arriving at the field the visitors were served with a luncheon at the Royalite camp of the Imperial Oil Company, Ltd. The Imperial is the Canadian prong of the Standard Oil Company of New Jersey. It controls from 85 to 90 per cent. of the production of the field. Considerable of this control is through subsidiary companies and by operating agreements with other companies.

Subsurface Rights in Canada

A rather peculiar condition as to subsurface rights exists in Canada. Prior to 1902 all sub-surface rights rested with the Crown, except special grants made to the Hudson Bay Company and the Canadian Pacific Railroad. Prior to 1902, homesteaders were given the sub-surface rights when they received a patent for their lands. Since 1902 the sub-surface rights have been retained by the Crown on all homestead grants. The sub-surface rights to land in the Turner Valley field are mostly owned by the Canadian government. Leases are very liberal, the royalty being 5 per cent. Usually a small percentage is allowed the owner of the surface rights. Permittees sub-contract government leases retaining an overriding royalty, so that when a lease changes hands several times before it is finally drilled it may be loaded down with very burdensome royalties, making it difficult for the operator to produce oil at a profit. In this respect, the Canadians have much the same problem as operators do in the states.

Description of Field

Various sections of the Turner Valley field were visited. After luncheon, the No. 4 well of the McLeod Company was opened and allowed to blow with the gate valve about one-third open. This well is in the heart of the field and is 5270 feet deep. It is producing from 1500 feet in the lime. This is the deepest lime producing horizon in the field. It had several gas showings in the lime but the big pay was found at 1500 feet in the lime.

Visits were made to the shops and scrubbing plants of the Imperial Oil Company, Ltd., several of the more important wells in the center of the field and thence to the Home wells toward the south end of the field. The Home well came in about five months ago and has been yielding 600 barrels daily with the use of four gas separators. The next day after the visitors were at the field, a well that is being drilled by the Imperial for the Associated Oil Company came in from a depth of 4410 feet with an estimated open flow of 20,000,000 cubic feet of gas and a naphtha production of 800 barrels daily. Pressure of the deeper wells has never been accurately gauged but it is believed to be considerably more than 3000 pounds to the square inch.

Turner Valley field is 16 miles long between drilling wells. Of this distance it has been proved for production for eight miles. The proved area east and west at the widest point is 1½ miles. There are 40 producing wells with an aggregate daily production of 3300 barrels. The total production of the field is around 100,000 barrels monthly.

It costs approximately $150,000 to drill a deep producer in Turner Valley and generally requires about one year. There is no water beyond the plentiful supply which is found near the surface. Both cable and rotary equipment is in use. The automatic rotaries cost about $50,000. The scale of wages corresponds with wages in the states. Head drillers get $14 a day, ordinary $12, tool dressers $8, and firemen $6. They work eight hours. These wages include room and board.

Some of the companies drill with their own organizations, some award labor contracts and some let turnkey contracts. The standard prices are $8 per foot for the first 3000 feet; $9 for the next 1000 feet, $10 for next 1000 feet and after 5000 feet a new agreement is made. The amount of iron used depends upon how the formation stands up.

On the return trip, a stop was made at the camp of the Invaders Petroleum Company where the northernmost test in the field is drilling. Refreshments were again served. It was somewhat of a novelty here for the Americans to be served with real lager beer and pure whiskey which they were at liberty to drink without violating a law.

The first day's program ended with an informal reception and "mixer" at the Palliser hotel. The "mixer" part of the program seemed to be very popular.

Herron Addresses Convention

At the session Friday forenoon, addresses were given by President Herron of the Alberta association, Donald Campbell of the Montana chapter and Governor J. E. Erickson of Montana, and a paper read by E. Byers Emerick, petroleum geologist.

President Herron reviewed the early history of the Turner Valley field and spoke of the discouragements under which the pioneer operators had to work. He said one had to be an optimist to drill a well at Turner Valley because of its great cost. Mr. Herron is president of the Oklata Petroleums, Ltd., one of the successful operating companies in the field.

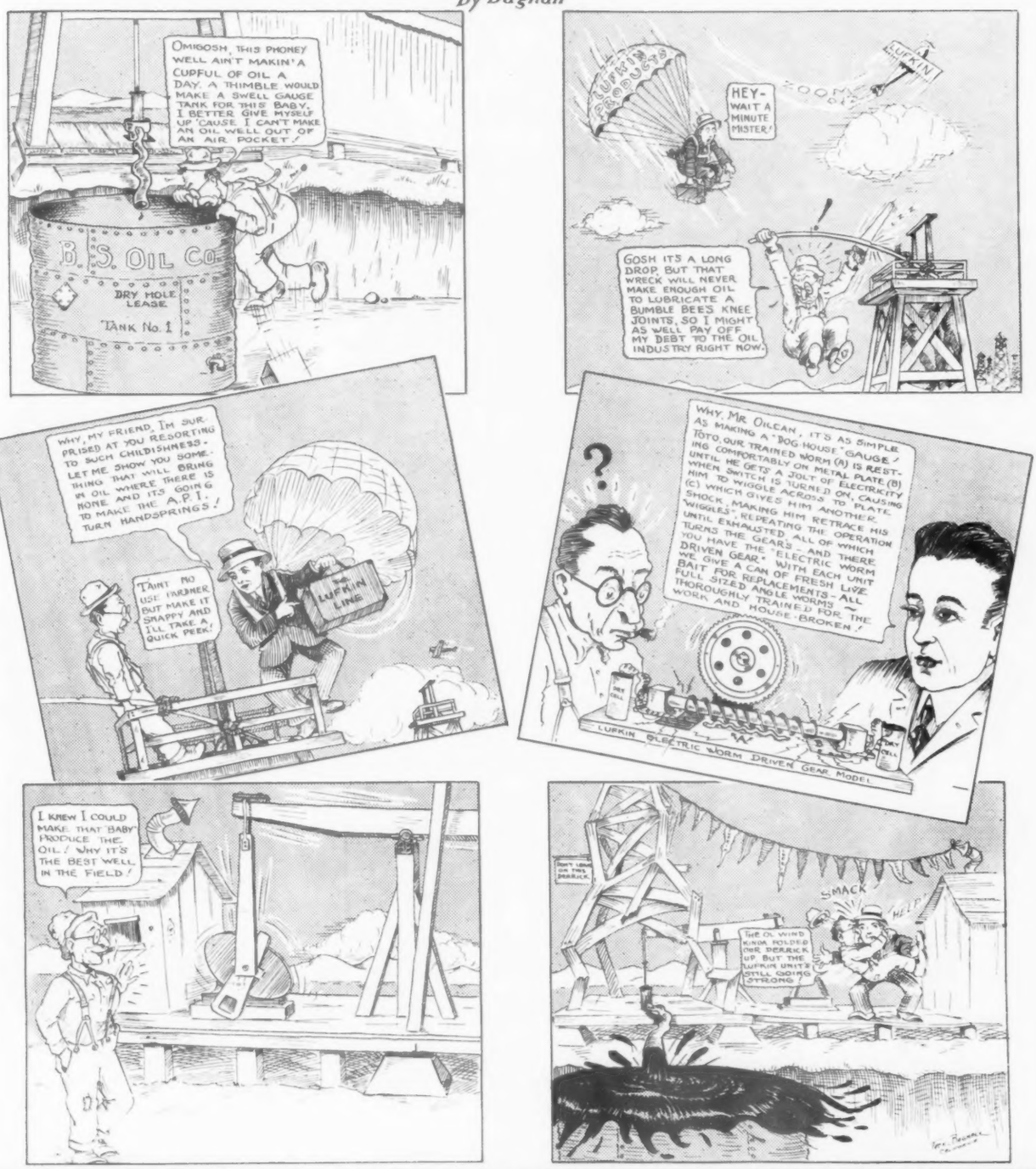
President Campbell of the Montana chapter spoke on "Organization and Co-operation." He brought out the need of both and told what the Montana organization had accomplished in preventing harmful legislation, securing helpful laws and keeping down unreasonable taxation. He warned the Canadians against using the revenues from a gasoline sales tax for other purposes than highway improvements. He closed with a plea for a better education of the public so that there might be a better understanding of the problems of the oil companies by the people. Mr. Campbell is a well-known Great Falls attorney who has made a specialty of petroleum litigation.

Governor Erickson Speaks

The subject of Governor Erickson's address was "Montana." He talked about

THE LUFKIN ELECTRIC WORM

By Bagnall


OMIGOSH, THIS PHONEY WELL AIN'T MAKIN' A CUPFUL OF OIL A DAY. A THIMBLE WOULD MAKE A SWELL GAUGE TANK FOR THIS BABY. I BETTER GIVE MYSELF UP 'CAUSE I CAN'T MAKE AN OIL WELL OUT OF AN AIR POCKET!
B.S. OIL CO.
DRY HOLE LEASE
TANK No. 1
LUFKIN PRODUCTS
LUFKIN
HEY- WAIT A MINUTE MISTER!
GOSH IT'S A LONG DROP, BUT THAT WRECK WILL NEVER MAKE ENOUGH OIL TO LUBRICATE A BUMBLE BEE'S KNEE JOINTS, SO I MIGHT AS WELL PAY OFF MY DEBT TO THE OIL INDUSTRY RIGHT NOW.
WHY, MY FRIEND, I'M SURPRISED AT YOU RESORTING TO SUCH CHILDISHNESS - LET ME SHOW YOU SOMETHING THAT WILL BRING IN OIL WHERE THERE IS NONE AND IT'S GOING TO MAKE THE A.P.I. TURN HANDSPRINGS!
'TAINT NO USE FARMER BUT MAKE IT SNAPPY AND I'LL TAKE A QUICK PEEK!
THE LUFKIN LINE
WHY, MR. OILCAN, IT'S AS SIMPLE AS MAKING A "DOG HOUSE" GAUGE! TOTO, OUR TRAINED WORM (A) IS RESTING COMFORTABLY ON METAL PLATE (B) UNTIL HE GETS A JOLT OF ELECTRICITY WHEN SWITCH IS TURNED ON, CAUSING HIM TO WIGGLE ACROSS TO PLATE (C) WHICH GIVES HIM ANOTHER SHOCK, MAKING HIM RETRACE HIS WIGGLES, REPEATING THE OPERATION UNTIL EXHAUSTED. ALL OF WHICH TURNS THE GEARS - AND THERE YOU HAVE THE "ELECTRIC WORM DRIVEN GEAR." WITH EACH UNIT WE GIVE A CAN OF FRESH LIVE BAIT FOR REPLACEMENTS - ALL FULL SIZED ANGLE WORMS - THOROUGHLY TRAINED FOR THE WORK AND HOUSE-BROKEN!
?
LUFKIN ELECTRIC WORM DRIVEN GEAR MODEL
I KNEW I COULD MAKE THAT BABY PRODUCE THE OIL! WHY IT'S THE BEST WELL IN THE FIELD!
DON'T LOOK ON THIS DERRICK
SMACK
HELP!
THE OIL WIND KINDA FOLDED OUR DERRICK UP BUT THE LUFKIN UNITS STILL GOING STRONG!

Manufactured at Lufkin, Texas, by

THE LUFKIN FOUNDRY AND MACHINE CO.

THE LUFKIN LINE

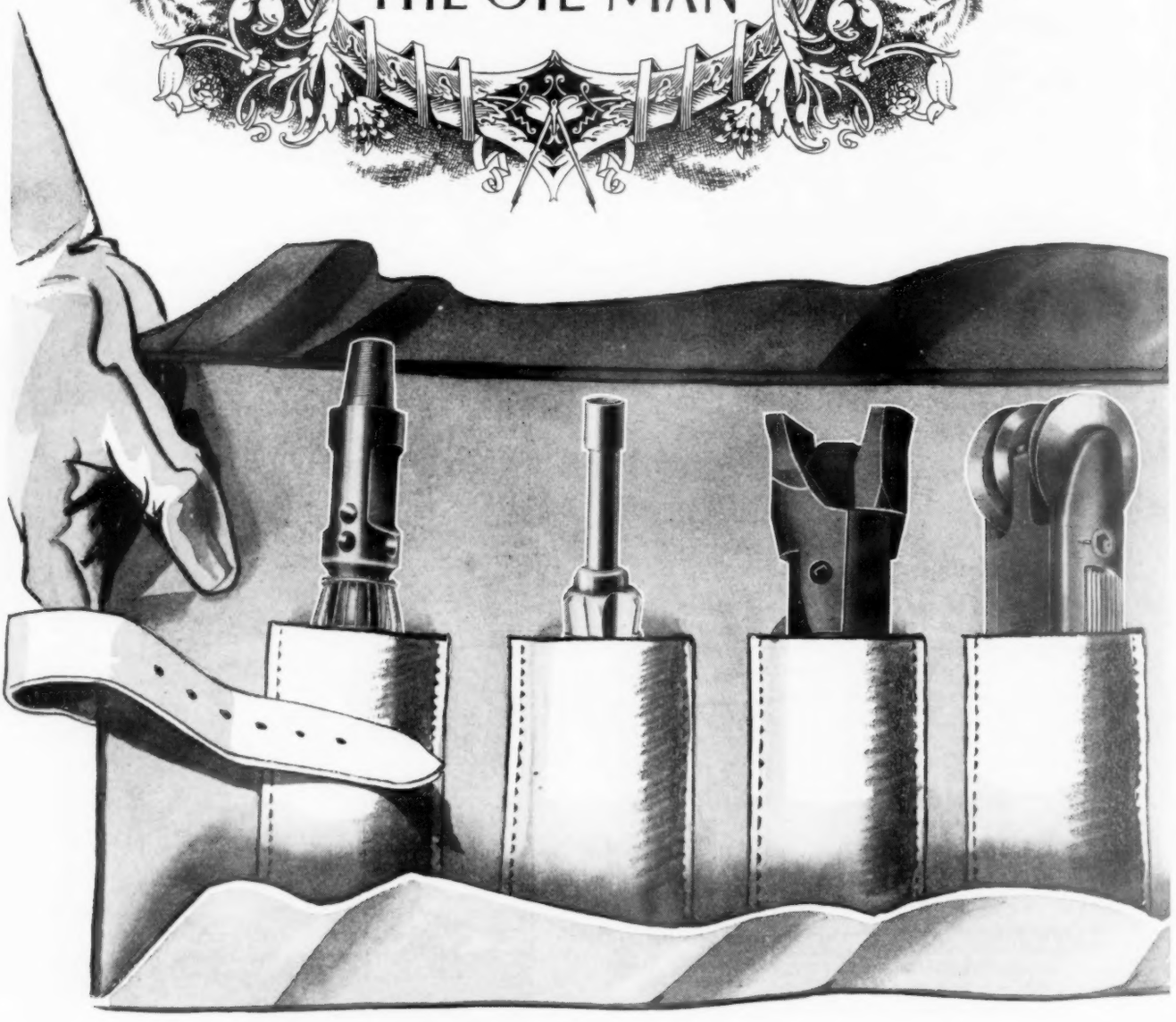
District Offices

Tulsa, Okla. Houston, Texas

THE LUFKIN LINE

Los Angeles, Cal. Seminole, Okla. El Dorado, Ark. Odessa, Texas New York, N.Y.

Mechanic Extraordinary
to His Majesty
THE OIL MAN

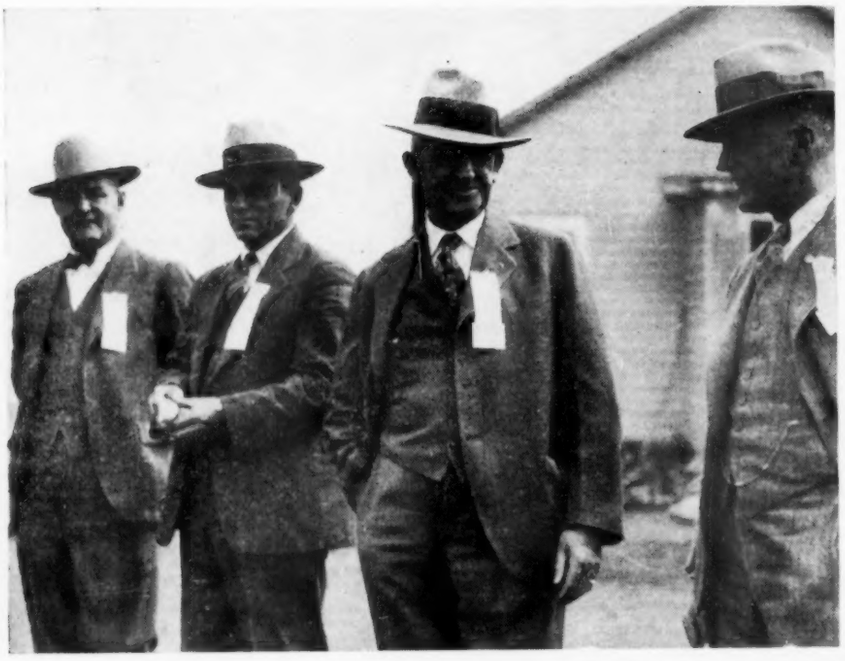


GUIBE

BETTER BE SAFE

IBERSON

BETTER BE SAFE THAN SORRY



N. E. Porter, Hanna-Porter Oil Company, Shelby, Montana; J. H. Longabaugh, American Tank Company, Oklahoma City; Karl H. Adams, division salesman for Black, Sivalls & Bryson, and Lawrence R. Hanna, Shelby, Montana

both Montana and Alberta, contrasting and comparing the two. He also reviewed briefly the history of the oil industry. In closing he paid his compliments to the conservation pessimists who have been predicting for the last 40 years the imminence of an oil famine. Improved processes, tested substitutes, and immense shale reserves will take care of the future in the opinion of the governor, not to say anything about the inventive genius of the people who have always been equal to such situations in the past. However, the governor does not believe that anyone now living need have any concern over an "oil famine."

The paper by E. Byers Emerick of Conrad, Montana, on "Sharp Folding Adjacent to the Rocky Mountains in the Southern Alberta and Northwestern Montana" was both timely and interesting. He compared the conditions at Turner Valley with conditions geologically further south and gave it as his belief that more fields similar to Turner Valley might be discovered on both sides of the international boundary line. He called attention to the Milk River anticline in northwestern Montana where three structures are to be tested. He also called attention to the Teton anticline which has geological conditions similar to the Turner Valley structure. Mr. Emerick is credited with the discovery of the Bannytyne and Pondera fields in Montana.

There was no formal program or session Friday afternoon. The golf bugs were entertained at the Bowness Country Club while the visiting ladies were entertained at tea by Mrs. Herron, wife of the president of the Alberta association. On Friday evening there was a banquet in the main dining hall of the Palliser hotel which was attended by more than 300 persons. The banquet was followed by dancing.

Speakers of September 21

The morning session Saturday was addressed by J. E. Walsh, general manager of the Canadian Manufacturers' Association, who stated that the total investment in the petroleum industry was approximately $60,000,000 in Canada.

J. H. McLeod, superintendent of operations for the Imperial group in western Canada, told about some of the difficulties with which the operators have to contend in the Turner Valley field and how they are overcoming same. His group of companies is drilling 22 tests in the Turner Valley district, 20 in the field, one at Jumping Pound and one at Highwood.

E. B. COOLIDGE

W. M. Fulton of Conrad, Montana, president of the Fulton Oil Company, was next on the program with the subject "Reminiscenses." He contrasted drilling, producing and transportation methods of the oil industry in early days with present day methods. His talk was very interesting. He has been operating in Montana for 17 years and he drilled 17 dry holes before he was rewarded with a producing well in the state.

"Oil and Gas Development in Alberta"

Dr. Theodore A. Link, chief geologist for the Imperial group, read a paper at the afternoon session: "Oil and Gas Development in Alberta." Because of the exceptional opportunity he has had to study the geology of the province, his paper carried great weight with the delegates. In his conclusions Dr. Link pointed out many localities worthy of a test in a general way where there were prospects for the opening of more new fields.

"What I Don't Know About Oil" was the subject discussed by W. W. Gail of Billings, Montana, which was the last number on the program. Mr. Gail is an advertising expert, the head of two oil royalty companies and publicity director for a mining company but above all is a remarkable entertainer. He talked for about 20 minutes and kept his hearers in a roar of laughter nearly all of the time. He spoke of the hazards of the industry and set the date of the discovery of oil in Montana as November 6, 1919. The most practical suggestion in his talk was a request that the petroleum geologists get together at some of their meetings and take steps to change the nomenclature of the formations so that the same sands would bear the same name regardless of locality.

Important Elections

Regular sessions of the convention closed with the afternoon meeting September 21, although there was a concatination held at night at the Palliser of the Imperial Grand Lodge of the Mystic Order of the Wildcatters of the Universe. A class of about 100 were initiated into the mysteries of the order, each member being presented with an embossed and beautifully engraved certificate of membership. At the close of the concatination, officers for the ensuing year were elected as follows: Grand Keeper of the Log Book, A. H. Raymond; Grand Imperial Keeper of the Wildcat, O. I. DeSchon; Grand Imperial Pebble Puppy, Dr. T. A. Link; Grand Imperial Look Box, L. F. Sontag; Grand Imperial Control Head, E. B. (Hardrock) Coolidge; Grand Imperial Tank Wagon, R. P. Jackson.

It is planned to hold the next joint convention of the Alberta and Montana associations in Great Falls next year. It was a very successful convention and will do much in a broad way toward cementing friendships between two of the greatest countries in the work among men who are engaged in promoting one of the most important industries of the world.

crooked holes - - - - - -
are still being drilled, hundreds of them, in fact more than ever due to the greater depth of present day drilling - - - - - - - - - - one company at signal hill drilled two wells - - - - - deviation in one 2,700 feet - - - - in the other 3,600 feet - - - - - - - - - another at santa fe springs drilled 20,000 feet in one well - - - just one backup after another! - - another well now drilling six months and down only 5,000 feet - - - - and the worst is yet to come. - - - -

those people are not using drillometers - - - - they think they are "getting along" with inaccurate and out-of-date equipment - - - - but compare the above with these - - - - hancock number 19 signal hill - - - - down 5,148 feet in two months - - - - no twist-offs - - - - no wobble-offs - - - - no bad water shut-offs - - - - and only 73 feet deviation - - - - that's real drilling - - - - they used a super precision drillometer - - - - and the autodrill too - - - - with other large companies, like wilshire, wells come in like clock work - - - - tho they go over 8,000 feet - - - - and everybody knows the world breaking record of shell! remember - - - - those of you, who are not using supers are paying enormously for them in crooked holes, twist offs, and bad water shut-off - - - - and not getting them - - - - only by buying accurate, modern equipment can you get thru paying - - - - throw your junk away - - - - it pays - - - - it pays big!

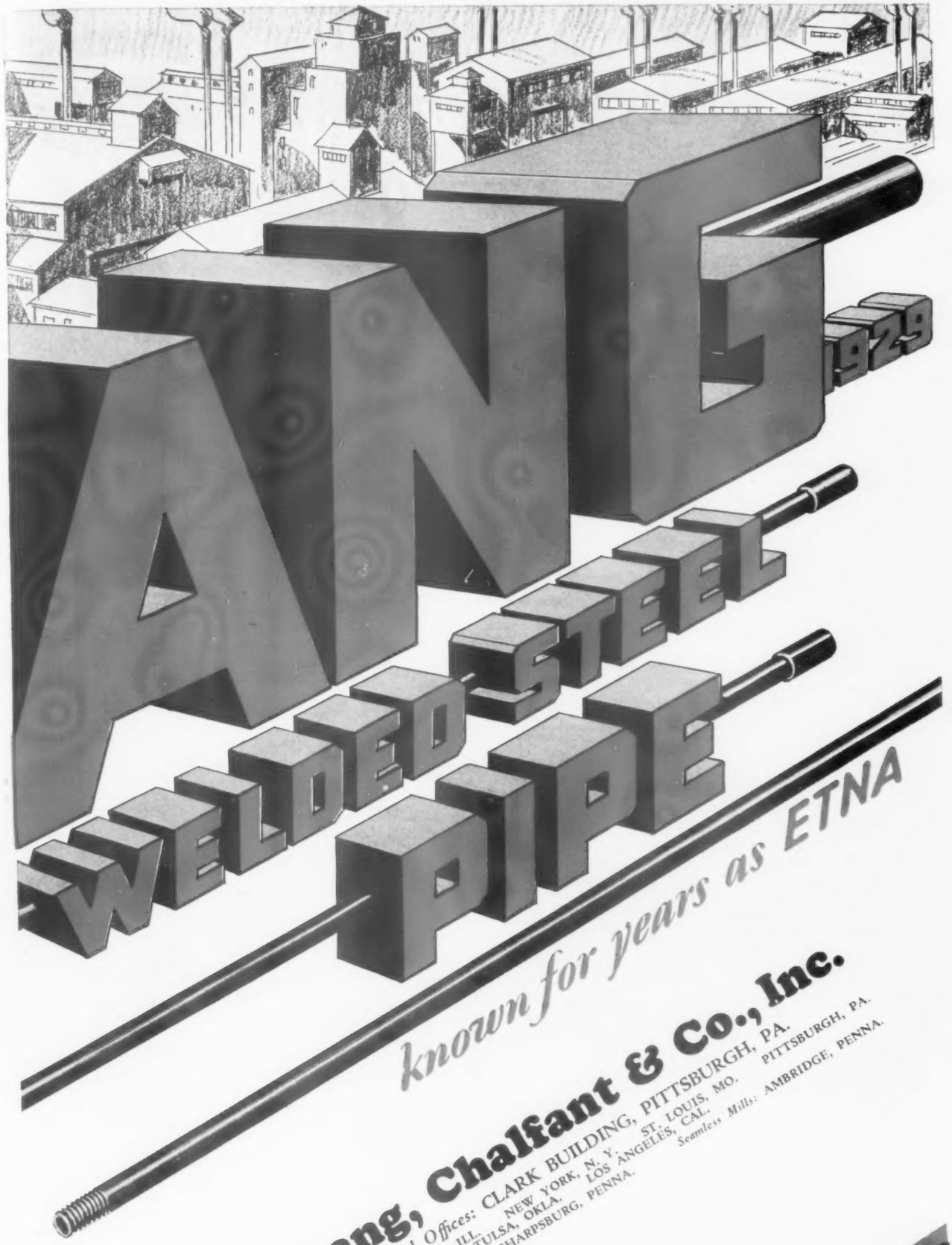
THE DRILLOMETER COMPANY
TERMINAL SALES BUILDING
LOS ANGELES, CALIF.

Oklahoma
General Oil Tool Co.,
Tulsa - Seminole

Texas
Gray Tool Co.,
Houston

Many Years of Successful Pipe Manufacture~

. . . has established a world-wide confidence in this mastermade pipe . . . the pipe that has satisfactorily served the needs of particular pipe users for five generations . . . the pipe that is backed by nearly a century of progressive development, and the skill of men who have mastered the art of good pipe making by years of specialization.



known for years as ETNA

Spang, Chalfant & Co., Inc.

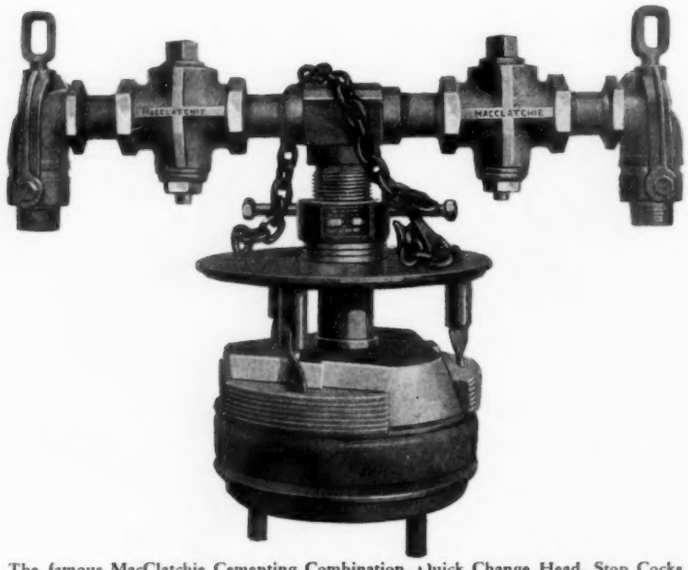
General Offices: CLARK BUILDING, PITTSBURGH, PA.

Sales Offices: CHICAGO, ILL. NEW YORK, N. Y. ST. LOUIS, MO. PITTSBURGH, PA.
TULSA, OKLA. LOS ANGELES, CAL.

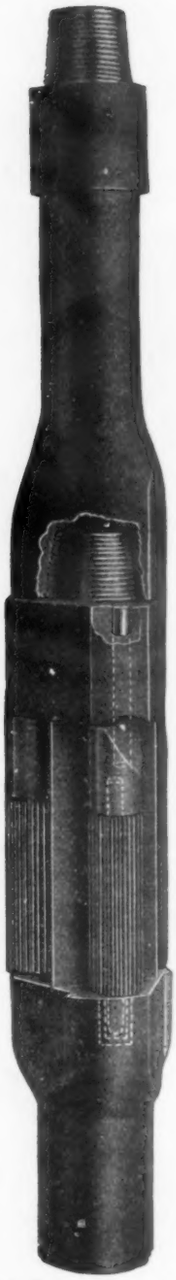
Welded Mills: ETNA, PENNA. SHARPSBURG, PENNA. *Seamless Mills:* AMBRIDGE, PENNA.

At the show, gentlemen...

MacCLATCHIE MANUFACTURING CO.



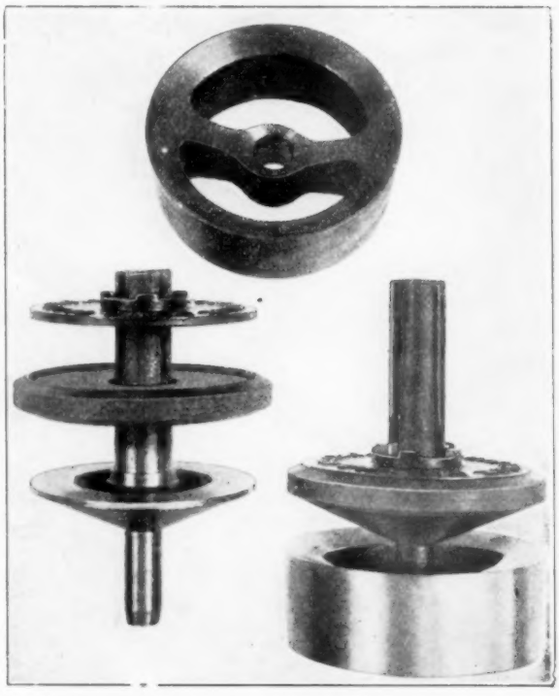
The famous MacClatchie Cementing Combination, Quick Change Head, Stop Cocks, and Quick Unions, assembled. Used by leading operators and cementing companies in all fields.



MacClatchie Rotary Under-Reamer combines strength with simplicity of design.

In Booth 110, Oklahoma Building, visitors to the oil show will find these and the numerous other MacClatchie Quality Products. You are invited to visit the MacClatchie display and view these modern developments in oil field equipment.

The new MacClatchie GEARED Brake for Draw-works, and "Pipe-tectos," rubber protectors with the grip of steel, *will be exhibited for the first time at any oil show.*



"There are more MacClatchie Mud Pump Valves used than any other make." Quality is responsible. Large stock carried by all Mid-Continent Continental Supply Houses.

MacCLATCHIE MANUFACTURING CO.
COMPTON - - - - - - - - - CALIFORNIA

Legislative Restrictions Modified

Roumanian Oil Industry Expanding

An Interview with
NIC N. STEFANESCU

THE Roumanian oil industry is making rapid strides since the removal of legislative and economic obstacles which have retarded operations in recent years, according to M. Nic N. Stefanescu, petroleum engineer, of Bucharest, Roumania, who is making a tour of American oil fields to study modern methods and equipment. Since the modification of Roumania's petroleum laws, which became effective this year, complete liberty and equality is given not only to outside capital but to foreign personnel as well.

M. Stefanescu, who is connected with the *Industria Romana de Petrol*, second largest oil company in Roumania, said that independent Roumanian producers were hard hit by the price slashing tactics which marked the recent conflict between Standard and Shell groups in European markets; but, since these great interests reached an accord in the spring of this year, there has been an improvement in market conditions which has permitted the smaller companies to resume drilling on a large scale.

Roumania ranks second to Russia among the oil producing states of Europe. Production has increased to around 105,000 barrels per day, the bulk of which is controlled by the Steaua Romana, Industria Romana de Petrol, Creditul Minier, Astra Romana (Shell), Romana-Americana (Standard), Unirea, Concordia, and Colombia companies.

Recent extensions indicate that the Moreni, Gura Ocnites, and Ochiuri fields may all be parts of one large productive area at least 30 kilometers long. Of greater importance, however, has been the discovery of remarkably fertile deep sands, which yield light paraffin oil of from 34 to 70 A. P. I. gravity.

The deep-sand discovery well of the Moreni field, which was brought in about four months ago from a depth of around 6000 feet, was still flowing wild, according to latest advices. Engineers estimate that the well has a rock pressure of around 3000 pounds, and that it is producing approximately 14,000 barrels of oil per day. Unfortunately, it caught fire soon after its completion and has not yet been brought under control. Two efforts to shut it in by tunnelling have failed, and a third and deeper excavation is being made.

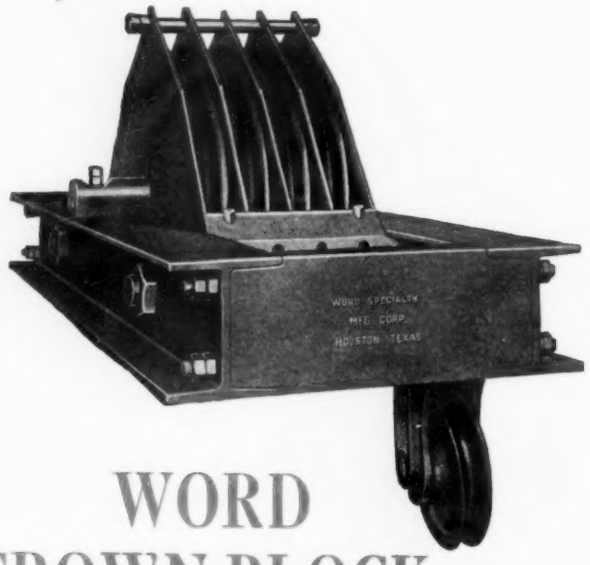
Changing Methods

M. Stefanescu stated that several of the old fields are being re-drilled to deeper sands; and that the erection of tall rotary derricks is giving an entirely new aspect to landscapes formerly characterized by the short walled-in derricks used in the percussion-slush system of drilling. Roumanian drilling practice is being revolutionized by the adoption of the rotary method with which to drill to the greater depths now in order.

When questioned regarding talent and equipment employed in Roumanian operations, M. Stefanescu explained that foreign personnel is needed to much less ex-

Burning well—Gura Ocnites Field, Roumania

FOR EVERY OIL FIELD NEED



WORD CROWN BLOCK

Each sheave oiled separately (alemite system). No "Hot Boxes" or loose bolts. Main shaft supported on both ends of spacer plates.

Heavily galvanized to prevent rust or corrosion, fitted with special American Roller Bearings and equipped for Alemite positive pressure lubrication throughout. Simplest and most easily dismantled crown block ever made.

Approximate weight 3000 lbs. Write for pamphlet giving complete details of this Crown Block.

WORD CHEMICAL FEEDER

This WORD Hi-Speed CHEMICAL FEEDER may be used for the treatment of production of any well, regardless of size. A riser within the drum allows gas to gather on top of the chemical, forcing it through the SIGHT FEED. This is equipped with needle valve control which permits of very close adjustment of the amount of chemical fed into the line.

Valve and funnel arrangement at top permit easy filling, and guage at side indicates level at all times.

P. O. Box
276
Houston
Phone
Preston
1927

Word Specialty Manufacturing Co.

HOUSTON. TEXAS.

Word's NEVER FAIL

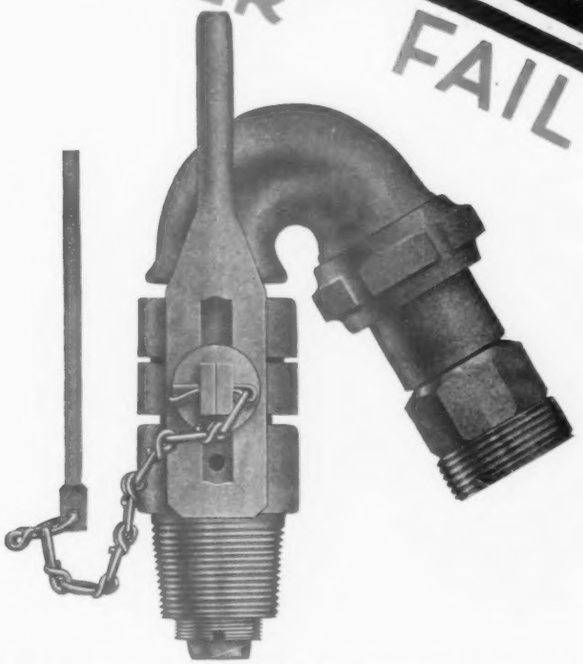
THE TURBOLITE

FOR LIGHTING TANK FARMS, REMOTE CAMPS, PIPE LINE STATIONS, TUG BOATS, ETC.

The TURBOLITE is a Patented, self-contained, STEAM-TURBINE GENERATOR. It is combined with a bi-polar Direct Current Generator, and makes one complete unit.

It is widely used for economically and efficiently lighting Leases, Tank Farms, Pipe Line Stations, Remote Camps, Tugs, etc. It can be furnished in the shunt-wound type for storage battery charging.

Wire, Phone or Write—We are always on the job.



HINDMAN UNIVERSAL SUB-SWIVEL

—especially valuable in setting screen as it enables Driller to maintain perfect circulation and keep screen pumped clean. Also maintains circulation around packers after the bottom of screen has been passed and packers set in place.

LESSENS THE DANGER OF BLOW-OUTS AND INJURY TO WORKMEN in gas troubles. It is designed to keep a back-pressure against the mudded walls when going in or coming out with Drill Stem. This eliminates the SUCTION created by other methods.

It is also efficient in the washing out of pump

REGAN RIGID CROWN BLOCK MEETS THE DEEP DRILLING DEMANDS.

tent in his country than in other fields, for the reason that Roumanian engineers have an adequate background of experience which enables them to handle the specialized and technical duties usually assigned to imported men. During the last 10 years, two of the larger universities of the country have established comprehensive courses in petroleum engineering. M. Stefanscu's present tour of the United States is due in part to his having won a scholarship while studying petroleum engineering at the University of Bucharest. During the last three years a large number of Roumanian engineers have made similar tours for the purpose of studying new methods and equipment. M. Aurel Dragulanescu, petroleum engineer representing the Steaua Romana company is now in Houston on a similar mission.

Speaking of equipment, he explained

NIC N. STEFANESCU

that the adoption of rotary methods has diverted to America a large volume of Roumanian business which formerly was placed in Germany and Austria for the purchase of percussion-slush machinery. However, with the exception of rotary drill pipe bought in the Unuited States, all of Roumania's requirements of tubular goods are still supplied by German mills. Great Britain's share in Roumania's oil-field equipment trade is comparatively small, as operators prefer to buy from America, first-hand, so as to be sure always of securing the very latest improvements which might not be available on equipment manufactured in Europe. A. P. I. standards have not yet been adopted by Roumanian operators, although the matter has been discussed from time to time in conferences called for that purpose. The present tendency is toward a sort of compromise between A. P. I. and *B. P. M. standards.

M. Stefanescu, who speaks English very well, stated that *The* OIL WEEKLY is very popular among Roumanian engineers; and that it serves a dual purpose for him as he reads it regularly for practice in the English language as well as to keep pace with the progress of the industry to which he has devoted himself.

*Bataafschhe Petroleum Maatschappij (Shell)

"The Economic Lesson of 1928-29 In the Petroleum Industry"

By JOSEPH E. POGUE

Consulting Engineer, New York City

Delivered before Annual Meeting, National Petroleum Association, Atlantic City, September 18, 19, 20

IN 1928 the petroleum industry stored 25 million barrels of oil. In 1929 it is certain that nearly 20 million barrels will be added to inventories. If confronted with these figures alone, without further information, one would conclude that these two years were periods of depression with earnings diminished to the vanishing point. Yet the facts are that both years yielded reasonably good profits to the best managed companies, while the market price of oil securities on the average advanced 60 per cent. How, then, are we to explain this anomaly — the coexistence of continued overproduction and, at least, moderate prosperity?

The conventional answer to that question would doubtless be to attribute the results to "conservation," that much used and abused word. Yet conservation did not prevent overproduction. It probably staved off chaotic conditions, but it did not bring a profitable price for crude oil. However, the price of crude oil *per se* is of secondary importance to the industry as a whole, except as a means of stimulating or retarding supply. Revenue, and hence profits, come to the industry largely through the sale of gasoline. Crude oil and its price is purely an intra-industrial matter. The public does not buy crude oil.

In 1928, the income of the petroleum industry was derived approximately as follows:

	Million of Dollars	Per Cent of Total
Gasoline	2,725	68
Kerosene	313	8
Fuel Oil	382	9.5
Lubricants	380	9.5
All others	200	5
Total	4,000	100

This table emphasizes the paramount importance of gasoline to the oil business as the all important channel through which its profits are derived.

Prior to 1927, the petroleum industry was accustomed to overproduce crude oil and gasoline simultaneously and the prices of the two commodities fluctuated in unison. In 1927, the prices of both suffered a severe decline. But, while overproduction of crude oil continued, the decline in gasoline prices retarded the manufacture of gasoline so that 1928 was entered with gasoline in a sound statistical position. Accordingly, in that year we witnessed something new in the oil business —a rise in gasoline prices more or less independently of the price of crude oil. Nineteen twenty-eight, accordingly, turned out to be a reasonably good year, despite continued overproduction of crude and despite the fact, also, that refiners began to impair the gasoline situation through overproduction in the later months of the year.

The present year opened with both crude oil and gasoline in oversupply, with the trade generally expectant that the demand for gasoline would show about a 40 million barrel increase over the year before, but getting ready to manufacture a 60 million barrel increment. Then a most fortunate thing happened, a gift from the gods, so to speak. The gasoline demand actually turned out to be 14 or 15 million barrels larger than the trade expected, and despite the most vigorous efforts to oversupply requirements, the exceptional demand was not realized in time to prevent the retail gasoline market, at least, from yielding reasonably good profits.

While the gasoline situation in both years was the result of economic conditions, and not to be credited to the acumen of refiners, do we not have in these events a clue to prosperity in the midst of a surfeit of crude oil?

A great deal of time and attention has been devoted to devising means for controlling the supply of crude oil, and the end is not yet. It is not our intention to minimize the urgency of rationalization in this department of the business. But we think that the past two years have shown the industry how to achieve prosperity even while they are traversing the long and laborious road that leads to "conservation."

The machinery is all present. The bulk of our gasoline is manufactured by relatively few companies. The demand for gasoline can be forecast; if not accurately, at least it can be *underestimated*, a most profitable error, as 1929 has demonstrated. The seasonal variation in the consumption of gasoline is accurately known. And now, thanks to the good offices of the American Petroleum Institute, the industry has available on Wednesday of each week, the stocks of gasoline as of the close of the previous week. The only additional ingredient needed in order to manufacture gasoline to meet, not exceed, the demand, is an advance in the art of collective management. And if gasoline is not overproduced, the industry can make money, whatever the zealousness of the crude oil producer.

We hope eventually to see the off-set well acquitted of the accusation of responsibility for *all* the evils of the oil business.

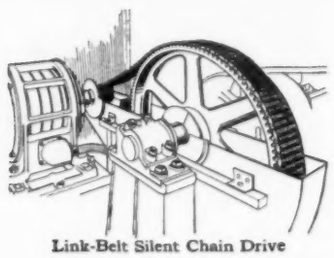
DRESSER

DURABLE RESILIENT ECONOMICAL SIMPLE SAFE EFFICIENT RELIABLE

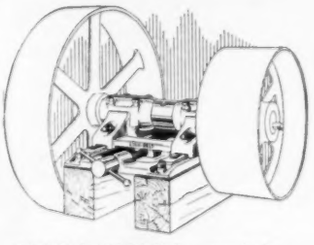
A Combination of Essential Factors for Satisfactory Service

COUPLINGS *Dominate!*

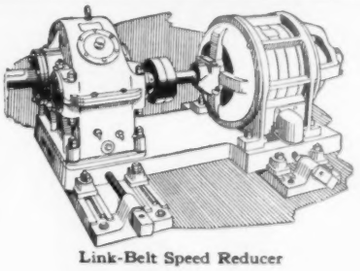
LINK-



Link-Belt Silent Chain Drive



Link-Belt Oil-Well Countershaft



Link-Belt Speed Reducer

LINK-BELT
EQUIPMENT FOR

BELT INVITES YOU

TO JOIN THEM AT THE

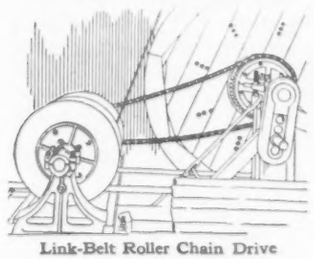
INTERNATIONAL PETROLEUM EXPOSITION

TULSA, OKLAHOMA
TEXAS BUILDING
OCT 5th TO 12th
BOOTH 85

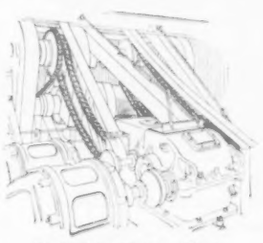
LINK-BELT COMPANY 3794

Leading Manufacturers of Elevating, Conveying, and Power Transmission Chains and Machinery

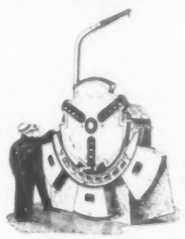
CHICAGO, 300 W. Pershing Rd. INDIANAPOLIS, 200 S. Belmont Ave. PHILADELPHIA, 2045 W. Hunting Park Ave. LOS ANGELES, 361 S. Anderson St.
SAN FRANCISCO, 19th and Harrison Sts. DALLAS, TEXAS, 1101 Mercantile Bank Bldg. NEW YORK, 2676 Woolworth Bldg.



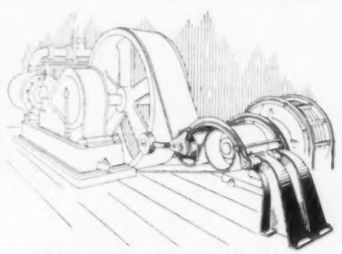
Link-Belt Roller Chain Drive



Link-Belt Rotary Chain



RUE-NER Pumping Unit



Meeseco Short-Center Belt Drive

LINK-BELT
THE OIL INDUSTRY

Paper read before Petroleum Section, National Safety Council, Chicago, October 1, 1929

Hazards *in* Pipe Line Construction

By B. F. FISHER

Vice President and Superintendent, Standard Pipe Line Company

THE construction of pipe lines, as means of transportation, economically, hugh quantities of crude oil from the sources of supply to refineries and terminals for transportation by rail or water, has been an important factor in bringing about a new era in the industrial life of our country as well as the world at large. This important work has not been without its difficulties and hazards to life and limb. It has ever been true that men who build important structures have exposed themselves to personal dangers. It is very fitting, therefore, that we discuss some of the dangers and hazards encountered in pipe line construction.

Oil fields, in a great many instances, are located in remote as well as inaccessible places. Nature has seen fit to deposit oil under every form of topography—fertile valleys, mountain tops, sun-scorched deserts, in beds of rivers, broad prairies, in tropical jungles and the frozen wastes of the north. To reach these fields with pipe lines, for the purpose of transporting the oil to the markets of the world, we encounter construction problems and natural difficulties, with their attendant dangers, just as pioneers in all great empire building industries have always had.

For discussion, I have grouped the hazards in pipe line construction into four general classes:

1 — Difficult natural conditions encountered.

2 — Methods peculiar to pipe line construction.

3 — Equipment.

4 — Personnel.

Difficult and Extraordinary Natural Conditions Which We Can Not Afford

A large pipe line must be laid across a wide swamp and deep river, which cuts across a direct route between an important oil field and refinery destination. The swamp stands under water the entire year but not deep enough to use boats and barges in heavy pipe line construction. The accumulation of years of semitropical vegetation has made this place a quagmire. The windlass horses used for raising the pipe out of this morass sink almost from their own weight into two or three feet of this slime. The use of a pipe laying machine in this particular spot is almost out of the question. The pipe must be strung through this swamp by a gang of men pulling it with ropes. The ropes are covered with mud and continually slipping. Two men who are lifting a joint of pipe stumble and fall; this throws an unusual weight on the others and down they go with a joint of pipe across one man's leg; one's leg is broken and another has a strained back. Later on, another man, in attempting to remove a pair of slick muddy tongs — or hooks as spoken by pipe liners — from a joint of pipe, looses his grip and as a result has his hand mashed. The line is finally laid up to the river. The pipe here must be laid off barges. The men must work in close quarters, the entire outfit continually swaying back and forth with the movement of the water. A slight slip of a pair of tongs or a rope and a man is knocked over into the river. It is hardly necessary to say that such situations are dangerous and that men are injured; yet such conditions frequently exist in the laying of pipe lines, especially in the southern part of the Mid-Continent area and in the tropics. Such accidents as described above are typical, even in the most experienced and best regulated gangs of all major pipe line companies. Our acciden records are mute testimonials of the fact that such situations are breeding places for all sorts of serious accidents.

Come with me now from the cypress swamps and deep rivers of the lower Mississippi Valley and let us examine the difficult topography of the mesquite covered hills and mountains of western Texas, where large quantities of oil is being produced and in this remote and desolate land pipe lines have been built across deep canyons, up cliffs of solid rock, where dynamiting was the only way that ditches could be made for burying the pipe; down sheer precipices, where pipe and even trucks and wagons had to be lowered with ropes. These are some of the hazards offered by nature with their attendant dangers; but these arteries of commerce had to be built and thus has opened another vast storehouse of oil to meet the multitudinous needs of our complex and modern civilization.

Hazards In Pipe Line Construction Work from the Standpoint of Methods Employed

The methods used in constructing pipe lines differ in many respects from those followed in other large construction operations wnere large numbers of men are required and a large amount of machinery is used. In the first place, a pipe line system is usually thought of in terms of hundreds of miles. Railroads can only be used in a limited way in the transportation of men and equipment. Pipe lines are usually laid on air lines across country. Gravel or hard surface roads are available along the rights of way of some of our older major pipe line systems; but many lines are laid through undeveloped and sparsely settled sections of the country where there are no roads or bridges.

In the second place, pipe line gangs must always be on the move. The equipment must be portable yet it is subjected to the hardest form of service. Crude and dangerous make-shifts are often employed along the transport lines due to the lack of time and equipment. In the next place, a big pipe line construction job is a combination of a number of small jobs, all being done at the same time, by a number of small gangs, most of whom are separated from each other by quite a distance and in most cases far removed from the point of supervision. Such methods handicap the management in personal supervision and regular inspection; and in the building up of mass enthusiasm of gangs as a whole in matters pertaining to the promotion of safety and accident prevention. Such methods offer to the careless workman an opoprtunity to indulge in dangerous practices and to take chances.

Furthermore, there is the problem of machinery versus the human element of natural carelessness; men will take chances with machinery. General methods of doing pipe line work have undergone some radical changes during the past few years. Pipe-laying machines are now used extensively instead of the old hand tongs; electrical and acetylene welding processes are gaining wide favor; pipe is mostly unloaded out of railroad cars by means of tractors with hoists attached, instead of the old and dangerous methods of men lifting out over the sides of the cars and rolling it to the ground on skids; where conditions will permit, pipe is now being hauled and strung along the rights of way by trucks and caterpillar tractors; special ditching and cleaning machines have been invented. The increase of all these modern machines has marked a step forward in the promotion of safety and accident prevention; but machines must be operated by men and other men must work around them. The new methods and this new equipment has not eliminated the dangers to life and limb. The human element is still there. Nothing in pipe line work is fool-proof. Some of our methods are faulty and obsolete. There is still room

(Continued on page 278)

CUT THAT OUT

It may look to be a spot—but out it comes. Every ingot must be carefully inspected—cropped, and, in many cases, a large percentage of the ingot must be discarded. Only perfect steel can measure up to the standard established for Pittsburgh Seamless—a standard of quality resulting from more than a quarter century devoted exclusively to the development and manufacture of seamless steel pipe and tubing.

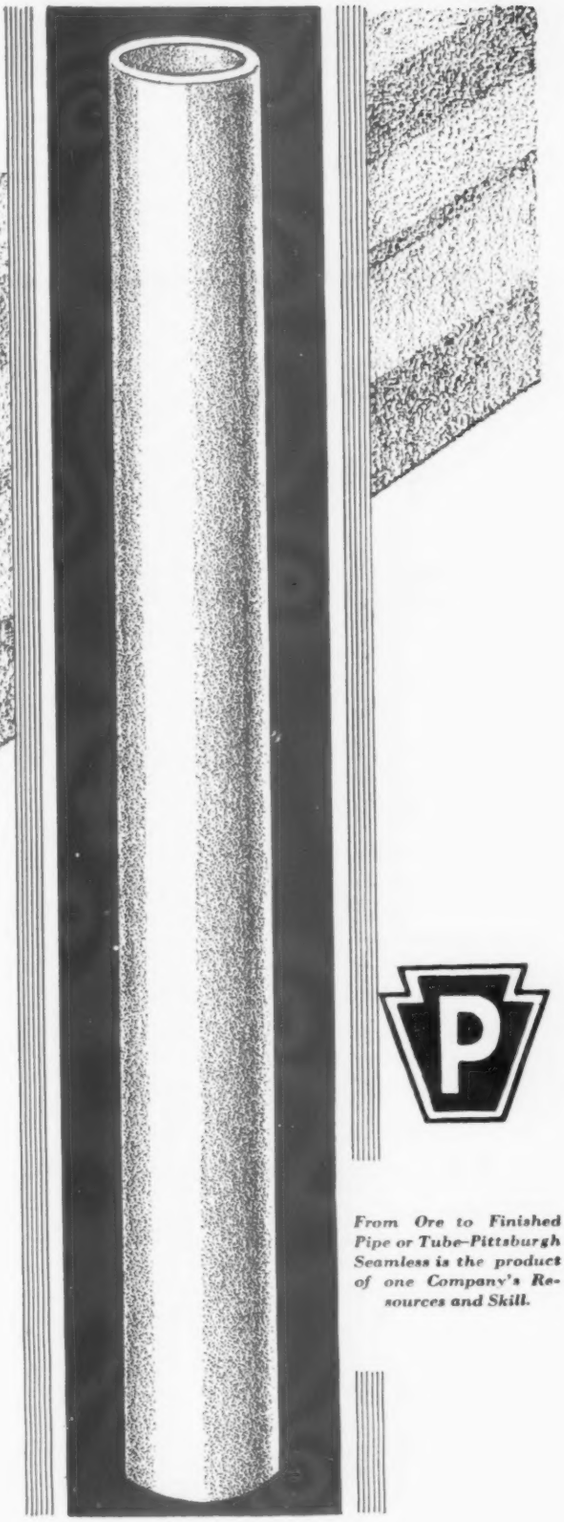
Pittsburgh Steel Products Co.

Division of

Pittsburgh Steel Co.

Pittsburgh P Seamless

Pittsburgh New York Chicago St. Louis Detroit Houston Tulsa



From Ore to Finished Pipe or Tube–Pittsburgh Seamless is the product of one Company's Resources and Skill.

Casing
Oil Well Tubing
Drill Pipe
Line Pipe

Sizes ½" to 13⅜" O.D., Lengths up to 45 Feet, depending on Size and Wall Thickness

from

the

CHRISTMAS TREE

to the

FIFTY-FIVES

Classified information cross-indexed—Look under Gauges, Valves, Fittings, Tubing Supports, Separators, Regulators, Tanks, Pipe, Casing Heads, Anchors, Stuffing Boxes, Jacks, Reduction Units, Sucker Rods, Working Barrels, Valve Cups, Rigs, Pumping—or

WHAT HAVE YOU

OR

WHAT DO YOU NEED?

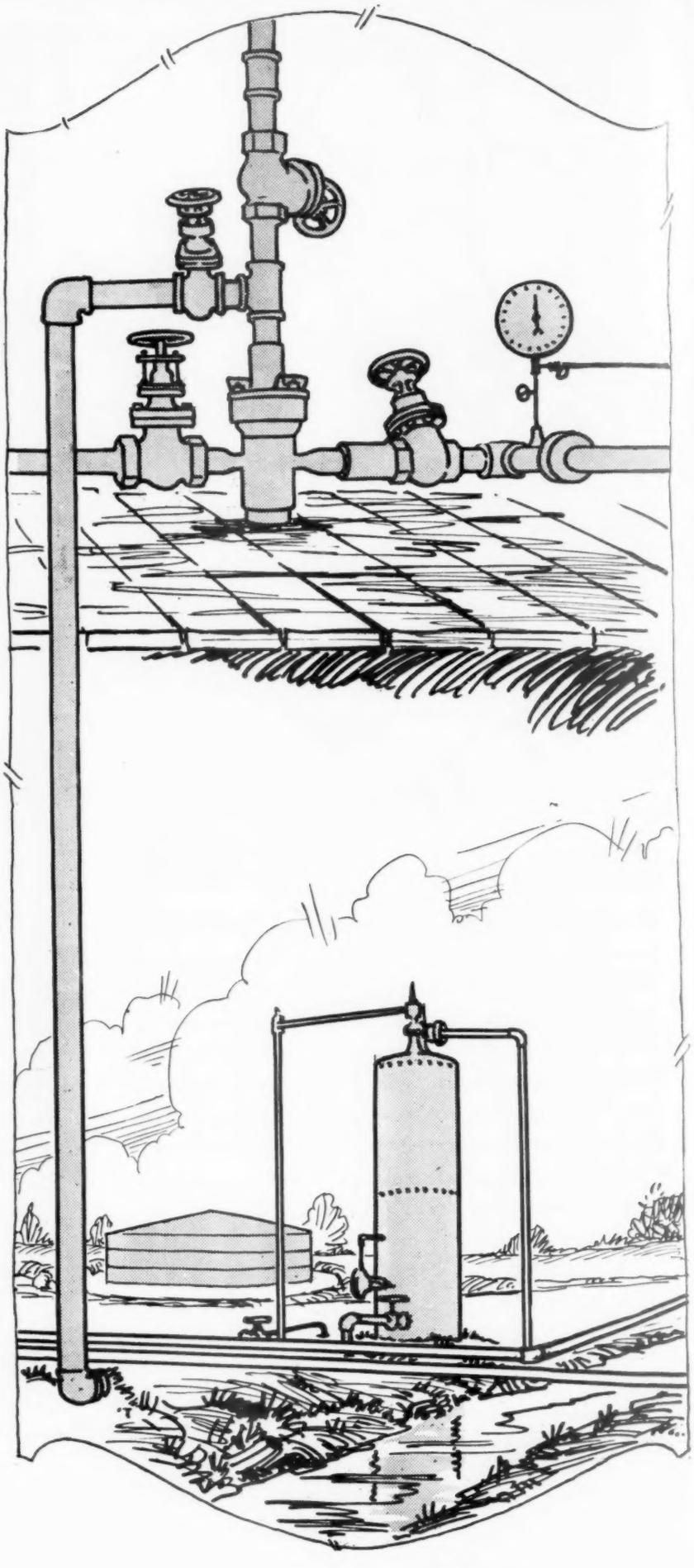
Look In The

COMPOSITE CATALOG

of OIL FIELD AND PIPE LINE EQUIPMENT

Published for your convenience

—One near You.—Use It.—



EXPOSITION EQUIPMENT DIRECTORY

International Petroleum Exposition

TULSA, OCTOBER 5-12

On the following pages will be found a complete directory of all exhibitors at the International Petroleum Exposition with list of products exhibited and names of representatives attending the show.

ACETYLENE JOURNAL PUBLISHING COMPANY

10′ x 10′ Outside Space.

(See Welding Engineer Publishing Company.)

ADVANCE-RUMELY THRESHER COMPANY

Wichita, Kansas

Booths Nos. 1-2-3 Pa. Ave. Arcade Building

Exhibit: Rumely OilPull winch tractor; Rumely OilPull stationary winch; Rumely OilPull winch tractor with portable mast; Rumely DoAll Industrial tractor.

Representatives: Fred E. Cooper, E. L. Kirkpatrick, A. G. Bailey, W. A. Thomas, D. E. Kneedler, J. B. Martin, John Province, Joe Brasier.

AIRCO-DAVIS-BOURNONVILLE APPARATUS CO.

Booths Nos. 33-34 Oklahoma Building

(See Air Reduction Sales Company)

AIR REDUCTION SALES COMPANY

New York, N. Y.

Booths Nos. 33-34 Oklahoma Building

Exhibit: Two mechanically operated Oxyacetylene Cutting Machines, namely the Airco-Davis-Bournonville Radiagraph (which aroused considerable interest at the exposition last year) and the Airco-Davis-Bournonville Camograph (which has not been shown before at a Petroleum Exposition). Cylinders of Airco 99.5 per cent pure Oxygen, Airco Acetylene; Airco-Davis-Bournonville complete line of Welding and Cutting Apparatus including Torches, Pressure Regulators, etc.; Airco-Davis-Bournonville Welding Supplies; Airco-National Carbide.

Representatives: P. S. Julian, district manager; W. R. Ost, engineer; O. N. Wilkinson, engineer; R. W. Reeves, salesman; R. R. Thompson, salesman; E. C. Ackerman, western representative N. C. C.

ALLEGHENY STEEL COMPANY

Brackenridge, Pennsylvania

Booth No. 10 Oklahoma Building

Exhibit: Allegheny Metal Seamless Tubing, Mechanical Tubing, Condensor Tubes, Working Barrel Tubes together with Allegheny Metal Sheets, Plates, Bars and Castings. Also ASCOLOY 33 Sheets shown in various forms.

Representatives: Mr. H. S. Brautigam, Mgr. of St. Louis office.

ALLEN'S SUPERINTENDENTS HANDBOOK

Philadelphia, Pennsylvania

Booths Nos. 40-41 Oklahoma Building

ALLIS-CHALMERS MANUFACTURING COMPANY

Milwaukee, Wisconsin

Booths Nos. 116-117-118 Oklahoma Building

Exhibit: A Texrope driven single reduction unit for drilling and pumping; a two-speed double rated oil well motor and control; the new Allis-Chalmers totally enclosed fan-cooled motor that can be installed outdoors without any other protection from the weather, together with weather proof push-button starter. The small compact "SSU" centrifugal pumping unit. In connection with exhibit of International Derrick & Equipment Co., a Texrope driven single reduction unit for rotary drilling; a 150 h.p. rotary drilling motor with snclosed slip rings and drip and splash proof cover; a 30 h.p. totally enclosed fan-cooled motor driving a gear unit for pumping and drilling.

Representatives: D. M. McCargar of the Tulsa office; Mr. S. Heckrotte of the Tulsa office; Mr. R. A. Seymoure of the Tulsa office; Mr. E. W. Burbank, manager Dallas district office; Mr. Asa E. Hunt of the Dallas office; Mr. J. N. Martin of the Dallas office; Mr. Guy Strafer, manager Kansas City district office; Mr. J. H. Kirkpatrick of the Kansas City office; Mr. G. L. Kollberg, manager Pumping Engine Dept., Milwaukee; Mr. Walter Geist, assistant manager, Milling Machinery Dept., Milwaukee; Mr. I. H. Reynolds, manager, Steam, Gas and Oil Engine Dept., Milwaukee; Mr. R. O. Gooding, assistant manager, Electrical Department, Norwood, Ohio.

ALLPAX COMPANY

Mamaroneck, New York

Open Air Space.

(See Krafft-Ramsay Manufacturing Company).

ALLSTEEL PRODUCTS MANUFACTURING CO.

Wichita, Kansas

20′ x 30′ Lot "F."

Exhibit: One Model 60 Allsteel Winch mounted on a "Caterpillar" Sixty Tractor; One Model 30 Allsteel Winch, mounted on a "Caterpillar" Thirty Tractor. One Model 15 Allsteel Winch, mounted on a "Caterpillar" Fifteen Tractor. One Model 30-R Allsteel Pipe Line Side Winch and Boom, mounted on a hillside special "Caterpillar" Thirty Tractor. One 4 x 6 Gardner-Denver Slush Pump, mounted on a "Caterpillar" Fifteen Tractor connected up with Allsteel Standard 4-speed transmission.

Representatives: A. Lea Kaltner, Wichita, Kansas; H. B. Owens, Tulsa, Okla.; L. Ray Austin, Fort Worth, Texas.

ALUMINUM COMPANY OF AMERICA

Pittsburgh, Pennsylvania

Booths Nos. 96-97 and 114-115 Oklahoma Building

Exhibits: Aluminum in all commercial forms, including sheet, castings and casting ingots, nails, bolts, high strength alloys, structural shapes, pipe, corrugated sheet and roofing, foil and powder, wire and cable. There will also be on exhibit, various types of equipment manufactured by local concerns, built out of aluminum.

Representatives: J. O. Chesley, Pittsburgh, Pa.; H. V. Churchill, Pittsburgh, Pa.; F. C. Shoupe, Pittsburgh, Pa.; F. H. Bentley, Kansas City, Mo.; K. V. Alexander, Kansas City, Mo.; I. C. Honegger, Houston, Texas; S. R. Knapp, New York, N. Y.; R. J. Fulton, Chicago, Ill.; E. B. Wilber, Tulsa, Okla.

AMERICAN ASSOCIATION OF ENGINEERS

Tulsa, Oklahoma

Booth No. 44 Scientific Building

AMERICAN BOSCH MAGNETO CORPORATION

20′ x 30′ Lot F.

(See Magneto Ignition Corporation).

AMERICAN BRASS COMPANY

New York, N. Y.

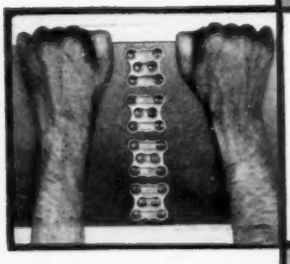
Booths Nos. 108-109 Oklahoma Building

Exhibit: Welding with Tobin Bronze and other Anaconda Welding Rods. A complete display of Everdur metal, a copper-rich alloy possessing the strength of steel and high

How to make LIVE

If you use a square to cut the belt

See that the ends are firmly butted together,



Firmly held in position

And that no metal touches the pulley . . .

CRESCENT BELT FASTENERS

Belting... LONGER!

WHEN belting runs true, the load is distributed uniformly across its entire width. Then all of the belt perfectly contacts the pulley . . . no tight edge taking double punishment . . . no slack side idling around.

It is all a matter of joining square cut ends . . . but to gain the fullest advantage of square ends they must be fastened, butted tightly together. Crescent Belt Fasteners insure this type of joining.

Crescent Plates are curved to fit the pulley. There is, therefore, no strain back of the joining. Crescent Rivets *do not cut the fibers of the belting.* The clinch imbeds itself into the belt . . . no metal touches the pulley to wear itself out.

Yes, Crescent Belt Fasteners make belting live longer.

CRESCENT BELT FASTENER COMPANY
247 Park Ave., New York City

THEN YOUR BELTS WILL LIVE LONGER

The Oil Field Package . . .

is an assortment of Husky Crescent Jumbo Plates and Crescent Jumbo Rivets. They are quickly applied without the use of special tools . . . just good common sense and a hammer. Try a package. It will cut your downtime, drilling and pumping. Crescent Jumbo Fasteners are made especially for the toughest kind of drives . . . the kind you find in the Oil Fields.

resistance to corrosion, as well as a general line of Anaconda Admiralty and Ambrac Condenser Tubes.

Representatives: A. L. O'Brien, service engineer; W. C. Swift, service engineer; G. V. Hackett, St. Louis agent.

AMERICAN CABLE COMPANY
Tulsa, Oklahoma

Booth No. 97 Texas Building

Exhibit: Bridge Cable — Tru-Lay Wire and Tru-Loc Fittings, mainly the Tru-Lay features and Tru-Loc Fitting Features to be exhibited — Flexible Bolts — Automobile Brake Cables — Airplane Control Wires, etc.

Representatives: George C. Moon, vice-president and sales manager, New York; C. A. Perryman, assistant sales manager, New York; L. E. Wyatt, Houston, Texas; C. R. Worley, Fort Worth, Texas; F. H. Hinkley, Midland, Texas; F. W. Ulin, Oklahoma City; Mc M. Rankin, Wichita, Kansas; J. H. Jameson, Tulsa, Oklahoma; R. L. Gormley, Tulsa, Oklahoma.

AMERICAN CAR & FOUNDRY COMPANY
St. Louis, Mo.—New York City

Booth No. 11 Oklahoma Building

Exhibit: Full size section of American Car & Foundry Company latest standard tank car underframe.

Representatives: J. B. Herman, St. Louis, Missouri; F. H. B. Fowler, New York City.

AMERICAN FOMON COMPANY
Philadelphia, Pennsylvania

Booths Nos. 44-45 Oklahoma Building

Exhibit: Complete line of extinguishers, with charges; FOMON generators — Models 5, 10, 12, 20; Portable riser and other supplemental equipment for employing FOMON method of extinguishing oil fires.

Representatives: G. Gordon Urquhart, Philadelphia; W. L. Walker, Tulsa; C. L. Moon.

AMERICAN HAMMERED PISTON RING COMPANY
Baltimore, Maryland

Booths Nos. 34-35 Texas Building

Exhibit: A complete line of Piston Rings. Besides standard product, a single piece concentric hammered piston ring, ventilated oil control rings will be demonstrated by a machine showing exactly how this ring functions in an engine. A hammering machine will be operated showing patented method of hammering. Several popular types of oil control rings will be shown — two-piece seal rings, Cronin Inner Seal Rings, Daros Duplex, and Wearing Rings, and two- and three-piece compressor rings will be shown.

AMERICAN IRON WORKS
Wichita Falls, Texas

60 x 70 Open Air Space.

See W-K-M Company)

AMERICAN-LA FRANCE & FOAMITE CORP.
Elmira, New York

Booths Nos. 95-96 Texas Building

AMERICAN ROLLING MILL CO.
Middletown, Ohio

Booth No. 47 Oklahoma Building

Exhibit: Rust-Resisting ARMCO Ingot Iron Roofing and Siding for use on Oil Field Buildings; ARMCO Ingot Iron Pipe for Refinery Equipment; Blue annealed plates or rust-resisting ARMCO Ingot Iron for Tanks, Boilers, Storage Tanks, and other plate purposes; Galvanized ARMCO Ingot Iron Products; ARMCO Ingot Iron Tubing; ARMCO Ingot Iron Culverts for Drainage purposes.

Representatives: R. E. Walker; M. B. Gebauer.

AMERICAN STEEL & WIRE COMPANY
Chicago, Illinois

Booths Nos. 36-37 Texas Building

Exhibit: We will exhibit a complete line of American Wire Rope, Oil Well Drilling, Sanding and Swabbing Lines and a complete line of Welding Wire.

Representatives: G. F. Bell, J. V. McGinity, C. S. Knight, Jr., D. A. Merriman, F. Connell, E. S. Humphrys, C. J. McGregor, O. B. Barrows, F. B. Kane, C. W. Matthews, J. L. Osborne, A. G. Bussman, R. S. Fisher, W. H. Cordes, H. R. Kline.

AMERICAN STEEL WORKS
Kansas City, Missouri

Booth No. 55 Texas Building

Exhibit: Asphalt Heaters; Oil Burners; Torches; Pouring Pots and Pipe Cleaning Machines; Featuring the American "Chief" four-wheel heaters and Model "C" two-wheel heaters.

Representatives: R. M. Soper, C. R. Huston, L. F. Phillips, R. M. Smart.

AMERICAN TANK COMPANY
Oklahoma City, Oklahoma

15′ x 30′, Lot H, Outside Space.

Exhibit: American Oil and Gas Separators.

Representatives: H. E. Burns, president; L. M. Hackett, superintendent; L. J. Bell, secretary; John H. Moran, sales manager; J. H. Longabough, district manager; W. S. Hovis, representative; E. G. Harvey, representative; C. G. Ross, representative; H. R. Bethel, representative; W. G. McCracken, representative.

AMERICAN WELDING COMPANY
(See American Car & Foundry Company)

ANCHOR POST FENCE COMPANY
Tulsa, Oklahoma

Open Air Space.

(See Dresser & Gorton, Inc.)

APPLETON ELECTRIC COMPANY
Chicago, Illinois

Booth No. 18 Arcade Building

Exhibit: Threaded and No-Thread Malleable Iron Unilets, also Conduit Fittings. Reelites — portable and Constant Duty types. Vapor proof Unilets for housing switches, receptacles, etc. Vapor proof fittings with globes and guards, also reflectors.

Representatives: R. V. Hawkins, district sales manager; W. H. Jennings, sales representative.

THE ARCO COMPANY
Cleveland, Ohio

Booth No. 5 Arcade

Exhibit: Arco Save-A-Line; Arco Aluminum Paints; Arco Metal Primers; Arco Industrial Enamel; Arco Gas Bar Luminamel; Arco Seam Sealer; Arco Tank Paints.

Representatives: F. T. Jamieson, D. S. Picard, Grover Thompson.

ARMSTRONG MACHINE WORKS
Three Rivers, Michigan

Booth No. 125 Texas Building

Exhibit: A glass model of the Armstrong Steam Trap operating under steam pressure by which the operating principle as well as the non-air binding and self-cleaning features can be observed. Will also show a representative line of our traps.

Representatives: O. E. Ulrich, factory representative; Geo. B. Allan, district representative.

ATHEY TRUSS WHEEL COMPANY
Chicago, Illinois

15′ x 20′, Lot D, Outside Space.

AXELSON MACHINE COMPANY
Los Angeles, California

10′ x 20′, Lot F, Outside Space.

Exhibit: A Relining Bench, on which pumps will be relined by Axelson representatives throughout the day. Also a complete line of Pumps, Sucker Rods, Fittings, and accessories.

Representatives: Clyde Ellwood, in charge of sales; D. M. Hammett, in charge of Mid-Continent sales; T. A. Brown, C. M. Worley, L. F. Lamb, S. G. Colbaugh.

BAKER OIL TOOLS, INC.
Huntington Park California

Booth No. 99 Oklahoma Building

Exhibit: Baker-Kammerer Pitman Weighted Counterbalance; Baker Combination Drilling Valve & Blowout Preventer; Baash-Ross (Hosmer) Auto Lock Packing Assembly; Baker-McLaine Float Plug (Screw or Slip Type); Baker Pattern Casing Shoe; Plain, California and Texas Pattern Casing Shoes; Cement Baskets; Cement Dump Bailers; Cement Plugs (Sure Shot); Cement Retainers (Model B); Baker-Burch Cement Float Shoe; Baker-Burch Side Hole Cement Float Shoe; Cement Baffle

EQUIPMENT
back of good service at *Wyatt's*

36-FOOT PLATE PLANER

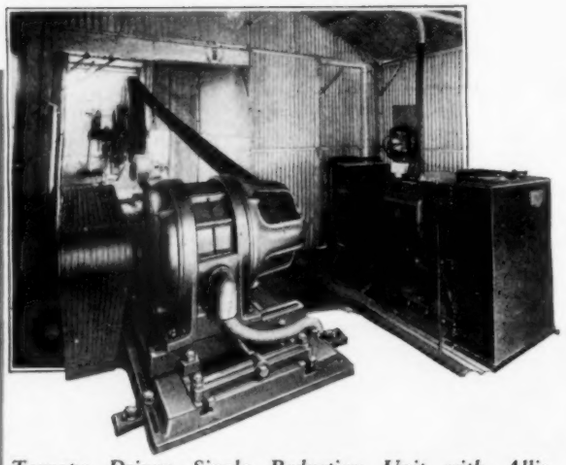
FOR maintaining a quality of work equal to that produced anywhere in the United States the Wyatt Metal & Boiler Works has placed in its Houston plant a number of machines destined to be of great value to the oil industry.

One of these machines is one of the largest plate planers in the country. It is 37 feet in length between housings and takes a 36-foot sheet up to 1½-inch plate. It reverses automatically.

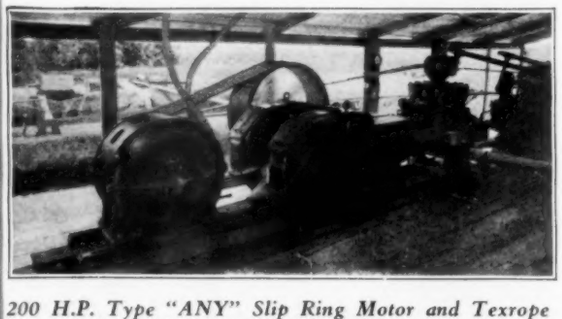
In subsequent advertisements Wyatt's will describe other equipment of interest to the oil and gas industry. Watch for these advertisements and familiarize yourself with the equipment of the South's greatest fabricating shop. Plants at both Houston and Dallas. Let Wyatt's figure on your next job.

WYATT METAL & BOILER WORKS
DALLAS *Capital $1,000.000* HOUSTON

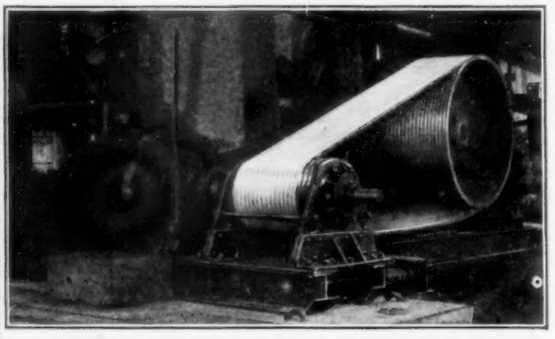
Wyatt's **WYATT**
METAL & BOILER WORKS



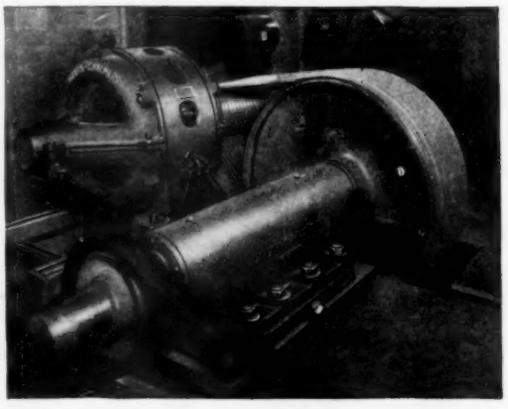
Texrope Driven Single Reduction Unit with Allis-Chalmers Motor and Control, arranged for cable tool drilling.



200 H.P. Type "ANY" Slip Ring Motor and Texrope Drive operating Slush Pumps



Texrope Drive on an engine driven rotary drilling rig of Mead Brothers of Oklahoma.



150 H.P. "ANY" Motor driving draw-works and table through Texrope Driven Single Reduction Unit.

ALLIS-CHALMERS TEXROPE DRIVE

Allis-Chalmers for the

The products through which Allis-Chalmers serves this great industry will be found in nearly all branches of it from the field to the refinery.

Positive and flexible multiple belt Texrope Drives are used for driving many types of oil field equipment. At the left are shown a few applications of Texrope Drives for cable tool and rotary drilling. Texropes are used extensively for driving pumping rigs, pipe line pumps, slush pumps, gathering pumps and for many other operations requiring a positive and flexible short center drive.

Texrope driven single and double reduction units are rapidly taking their place as standard equipment for pumping and for drilling. They have high salvage value, economy of operation and low maintenance.

Allis-Chalmers motors are used in all branches of the petroleum industry. Two-speed, double rated oil well motors for drilling and pumping; special drilling motors with enclosed slip rings and drip proof housings for protection against splashing water and corrosive gases; totally enclosed fan-cooled motors for exposed locations where the operation of an open type motor is not satisfactory; are some of the motors built especially for oil field operation. Standard squirrel cage and wound rotor induction motors for general purpose applications are built in all popular ratings from ½ H.P. up.

Products for the Oil Industry

Single and Double Reduction Units, Texrope Drives; Motors and control for drilling, Pumping and Pipeline; Transformers, Centrifugal Pumps; Pipe Line Pumps; Tractors.

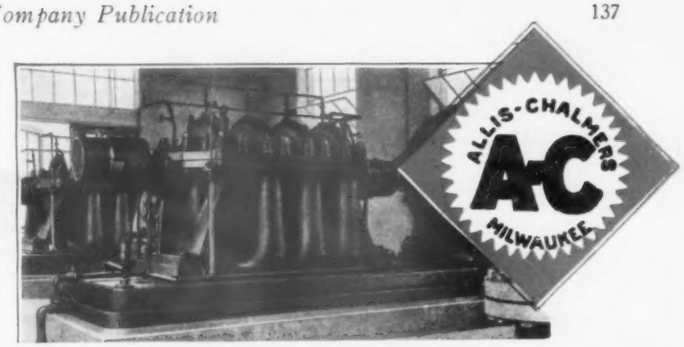
OIL FIELD OFFICES

Dallas, Houston, Tulsa, New Orleans, Shreveport, Kansas City, Denver, Los Angeles, San Francisco.

DISTRIBUTERS

Motors — Control — Texrope — Units
Western Supply Co., Tulsa.
Haywood Williamson Co., Shreveport.
(Also Centrifugal Pumps)
Bridgeport Machine Co., Wichita.
(Also Centrifugal Pumps and Transformers)

Products Oil Industry



Allis-Chalmers supplies control equipment for pumping and for cable tool and rotary drilling service.

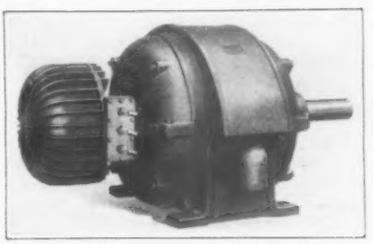
Transformers are built in all popular sizes for standard power and lighting requirements.

Allis-Chalmers pumps are used for many types of service in the oil industry. Forged steel plunger type pipe line pumps are built for capacities from 5000 to 50,000 bbls. per day to operate against pressures up to 1,000 lbs. per square inch. Type "M" double suction multi-stage centrifugal pumps are used for pipe line service, for gasoline loading and as transfer pumps. Type "S" single stage pumps are of simple and sturdy construction and may be used for general purpose service. The small, compact, type "SSU" pumping units make good pick-up pumps in the field. They are also useful for handling cooling water for engines, drainage water, etc.

These are but a few of the products through which Allis-Chalmers serves the petroleum industry. Others include steam, oil, and gas engines, air and gas compressors, complete power plant equipment, wheel and crawler type tractors, etc. Starting with a small shop in 1847 this company has grown to be one of the world's greatest producers of power, electrical and industrial machinery. An Allis-Chalmers engineer will be glad to show how this company's products will help get out more oil.

Type "M" Centrifugal Pipe Line Pump.

Type "SSU" Pumping Unit; hardly larger than the motor alone.



Special Drilling Motor with enclosed slip rings and splash proof housing.

Pittsburgh Type Distribution Transformer.

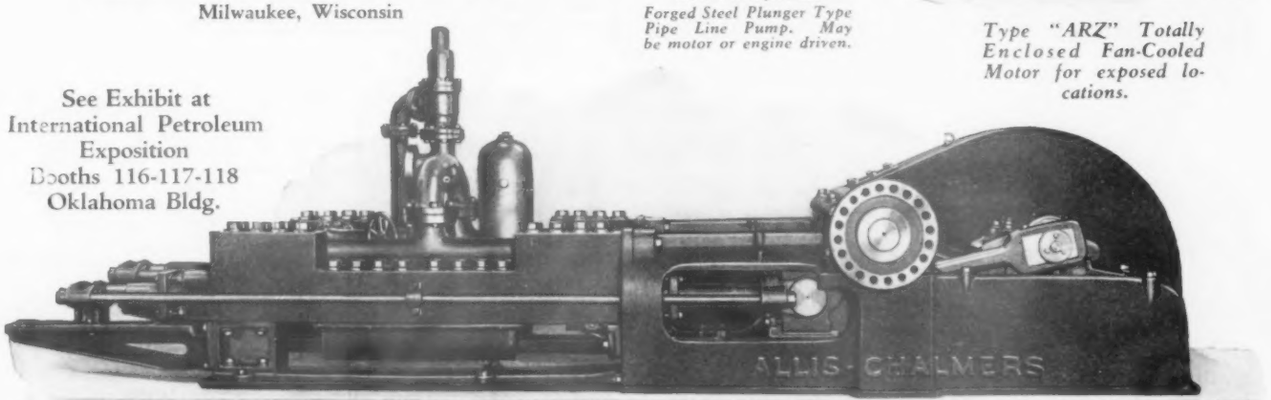
Forged Steel Plunger Type Pipe Line Pump. May be motor or engine driven.

Type "ARZ" Totally Enclosed Fan-Cooled Motor for exposed locations.

ALLIS-CHALMERS MFG. CO.

Milwaukee, Wisconsin

See Exhibit at
International Petroleum
Exposition
Booths 116-117-118
Oklahoma Bldg.



ALLIS-CHALMERS

MILWAUKEE, WIS. U.S.A.

Collar (with Hole or Solid); Cement Bull Plug Casing Shoe; Cement Float Collar; Cement Guide Casing Shoe; Cement Hook-up No. 1; Chisel Bottom Bailers; Saw-Tooth Bottom Bailers; Cleanout Bailers; Standard Cable Tool Core Barrel; Rotary Core Barrel; Hydraulic Core Extractor; Tongs for Cable Tool Core Barrel; Drill Pipe Floats; Float Collars (Cast Iron Valve); Float Shoes (Cast Iron Valve); Bull Plugs (Cast Iron); Plain Shoe Guides (Cast Iron); Rotary Hole Guides (Screw Type); Rotary Hole Guides (Slip Type); Pitmans, (all metal); Rotary Shoes; Rotary Hydraulic Expansion Wall Hook; Split Shoe Guides; Baker Steel Rotary Hose; Baker Marvel Ungling Spiral Guide; Baker Marvel Screw Grab; Baker Marvel Pipe Parting Overshot.

Representatives: R. C. Gove, special factory representative; W. A. Davis, district sales manager for Texas; H. J. McIntosh, Wewoka, Oklahoma; L. E. Cantrell, Ponca City, Oklahoma; P. V. McGivern, B. & A. Supply Co., of Tulsa, Oklahoma, and Houston, Texas.

BALDWIN CHAIN & MFG. CO.
Worcester, Massachusetts

Booth No. 60 Texas Building

Exhibit: Baldwin Precision Oil Well Chains 1030 S and 1240 S and Oil Well Chain Sprockets, also Standard Roller Chains and Steel Replacement Roller Chains.

Representatives: George J. Fix of Geo. J. Fix Co., Dallas, Texas; H. Klaucke, chief engineer, Baldwin Chain & Mfg. Co., Worcester, Massachusetts.

BALDWIN TOOL WORKS
Parkersburg, West Virginia

Booth No. 4 Arcade

Exhibit: Shovels, Spades, Scoops, Telegraph Spoons, Post Hole Diggers, Snow Pushers, Sidewalk Scrapers, ranging in quality from Baldwin's Alloy Steel Brand to Baldwin's Knox All Brand.

Representative: H. Cunningham, vice-president.

BARBER-GREENE CO.
Aurora, Illinois

Exhibit: Barber-Green Pipe Line Special Ditcher.

Representatives: H. H. Barber, president; W. B. Greene, vice-president; J. M. Burns, ditcher expert.

BARCO MANUFACTURING COMPANY
Chicago, Illinois

Booth **No. 56** Oklahoma Building

Exhibit: Barco Lubricated Plug Valves; Barco Flexible Joints.

Representatives: L. E. Livingston, V. C. Canter, C. J. Greene, C. F. Greene, B. W. Vinson, Herbert Wolcott.

BARTLETT HAYWARD COMPANY
Baltimore, Maryland

Booths Nos. 34-35 Texas Building

(See American Hammered Piston Ring Company).

BAUSCH & LOMB OPTICAL CO.
Rochester, New York

Booth No. 3 Scientific Building

BEAIRD CORPORATION
Shreveport, Louisiana

Booth Number 64 Texas Building

(See Modern Engineering Company).

BENDSTER BURNER & ENGINEERING CO.
Booth No. 108 Texas Building

(See Midwest Piping & Supply Company, Incorporated)

BENNETT PUMPS CORP.
Tulsa, Oklahoma

Booth Number 2 Oklahoma Building

BETHLEHEM STEEL COMPANY
Bethlehem, Pennsylvania

Booths Nos. 130-131-132-133 Texas Building

Exhibit: Bethlehem Pipe; Galvanized Corrugated Sheets; Alloy and Tool Steels; Paraffin Wax Plant Equipment; Specialty Forgings for the Oil Industry; Bolts and Nuts.

Representatives: W. F. Hart, Bethlehem; Wm. Chapman, St. Louis; E. S. Seaman, St. Louis; R. D. Oberwetter, Houston; H. E. Lee, Houston; W. B. Pritchard, Bethlehem.

B-G SPARK PLUG CORPORATION
20 x 30, Lot F.

(See Magneto Ignition Corporation).

BIG FOUR FOUNDRY COMPANY, INC.
Tulsa, Oklahoma

10′ x 10′ Open Air Space.

BIG THREE WELDING & EQUIPMENT CO.
Houston, Texas

Open Air Space.

(See Lincoln Electric Company).

BLACKOR COMPANY
Los Angeles, California

Booth No. 9 Arcade

Exhibit: Super Hard Facing Product — BLAKOR. Demonstration of method of application to oil well tools with the Electric Arc Welding Machine.

Representatives: Fulton Lane, general manager; C. G. Wertzberger, district sales manager; demonstrating welder.

BLACK, SIVALLS AND BRYSON, INC.
Bartlesville, Oklahoma

Open Air Space.

Exhibit: Perfection Vapor-Pressure Tanks.

Representatives: A. H. Black, H. E. Partch, Glenn Skinner.

BLAW-KNOX COMPANY
Pittsburgh, Pennsylvania

Booth No. 57 Oklahoma Building

Exhibit: Working exhibit of Pipe Line Tracyfier, an Apparatus for removing all drops and mist from steam, air, gas, etc.

Representatives: Mr. Kirkpatrick, Blaw-Knox Co.; B. W. Vinson, Vinson-Canter Co.; V. C. Canter, Vinson-Canter Co.

BOE MANUFACTURING COMPANY
Minneapolis, Minnesota

15 x 40, Lot D.

(See Oildraulic Sales Corporation).

ROBERT BÖSCH MAGNETO COMPANY, INC.
Long Island City

Booth No. 50 Oklahoma Building

Exhibit: The Bosch-Acro System of pumps, nozzles and injectors for Diesel-type engines using the solid injection principle. Also Robert Bosch magnetos, spark plugs and ignition equipment for all types of internal combustion engines using electric ignition.

Representatives: L. C. Carlton, Chicago, branch manager; Carl Behn, Jr., sales engineer.

BOSCHE EMBROIDERY COMPANY
Open Air Space.

(See Cowden Manufacturing Company)

BOTFIELD REFRACTORIES COMPANY
Philadelphia, Pennsylvania

Booth No. 32 Scientific & Technical Building

Exhibit: ADAMANT Fire Brick Cement; ADACHROME Plastic Super-Cement; ADACHROME Fines; ADACHROME Aggregate; ADAPATCH; The ADAMANT Gun.

Representatives: A. H. Engstrom, sales manager; Alvin Grais, salesman.

THE BOVAIRD SUPPLY CO.
Tulsa, Oklahoma

Booths Nos. 26-27 Texas Building

Exhibit: Bovaird Split Slip-Type Tubing Elevators; Bovaird Grip Tubing Spiders.

Representatives: W. J. Bovaird, Independence, Kansas; W. M. Bovaird, Tulsa, Oklahoma; F. D. Bovaird, Sapulpa, Oklahoma; Geo. Krell, Sapulpa, Oklahoma; J. B. Hubbard, Sapulpa, Oklahoma; F. J. Robbins, Oklahoma City, Oklahoma; C. V. Dennis, Independence, Kansas; D. C. Kennedy, Borger, Texas; C. A. Black, Wichita, Kansas; E. T. Eisele, Beggs, Oklahoma; W. D. Williamson, Seminole, Oklahoma.

BOYKIN DIVISION OF INTERNATIONAL DERRICK & EQUIPMENT COMPANY
30 x 90, Open Air Space.

(See International Derrick & Equipment Company).

BRADEN STEEL CORPORATION
Tulsa, Oklahoma

Booths Nos. 132-133 Oklahoma Building

Exhibit: Sectional Steel Buildings for Oil Field and Indus-

where standards originate!

OUT of a chaos of guesswork and chance the A.P.I. evolved the idea of standardized accurate gages for the oil industry.

Master standards had to be made. The entire line of gages in use was examined. Some were discarded as unnecessary. When the master gages were decided upon, the A.P.I. turned naturally to Pratt & Whitney to produce them.

Even for us (whose daily watchword is "accuracy," who measure in millionths of an inch) the creation of the master gages was no light task. But it was done. And from these standard gages are made the working gages now used throughout the oil country.

You may see them

If you come to the Exposition at Tulsa, you will see the complete set of master gages and a full line of working gages at our Booth No. 10, Scientific Building. Should you be unable to come, write for a free book on gages and gaging methods for oil country equipment.

Cable Drilling Tool Joint Gage

24½" A. P. I. Casing Gages

Pratt & Whitney Oil Country Gages include:

Interior Upset Drill Pipe Gages
Cable Drilling Tool Joint Gages
Plain and Upset Casing Gages
Plain and Upset Oil Well Tubing Gages
Rotary Taper Joint Gages, Line Pipe Gages
Sucker Rod Gages, Fishtail Bit Gages

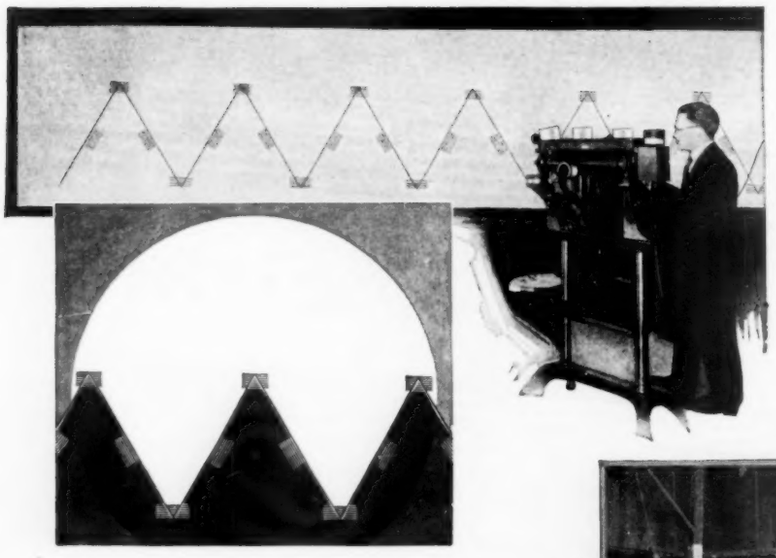
Write for information

PRATT & WHITNEY CO., *Hartford, Conn.*

Division NILES-BEMENT-POND COMPANY

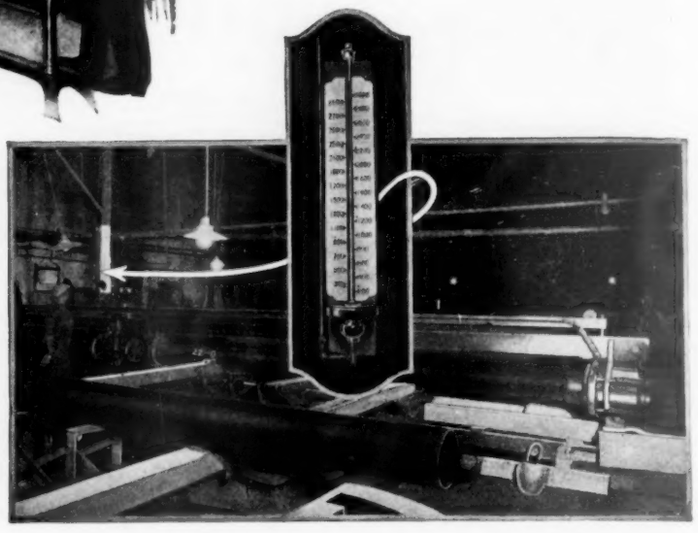
Sales Offices

BIRMINGHAM
BOSTON
CHICAGO
CINCINNATI
CLEVELAND
DETROIT
LOS ANGELES
NEW YORK
PHILADELPHIA
PITTSBURGH
ROCHESTER
SAN FRANCISCO
ST. LOUIS



This powerful projector throws on the screen an image of Chester threading magnified 200 times. Frequent comparison of thread samples with the chart keeps the threading uniform and accurate.

Knowing the unreliability of spring pressure gauges, Chester has installed mercury columns on its hydraulic testers so that there is no "guess work" as to the amount of pressure on each tube. This is just one of the many precautions which Chester takes to insure the utmost dependability.



Some of the Reasons for Chester's High Quality

It is painstaking thoroughness in every detail of manufacture which has given Chester Pipe, Casing and Tubing such a good name *in the field,* where consistently dependable performance is best appreciated.

Every piece of pipe, casing and tubing made by Chester is as nearly perfect as modern machinery and long experienced workmen can make it.

Distributors:

Pritchard Supply Co.,
Mannington, W. Va.,
Mather and Waynesburg, Pa.

Petroleum Supply Co.,
Houston, Texas
Norphlet, Ark.

Le Valley, McLeod, Kinkaid Co., Inc.
Elmira and Olean, N. Y.

Wagner Supply Co.,
Fort Worth, Cross Plains, Breckenridge, Odessa, Iraan, Wink and Forsan, Texas.

United Oil Well Supply Co.,
712 A. G. Bartlett Bldg.,
Los Angeles, Calif.

United Pipe and Supply Co.,
Charleston, W. Va., and
Paintsville, Ky.

Great Northern Tool & Supply Company
Billings and Kevin, Mont.
Kemmerer and Cody, Wyo.

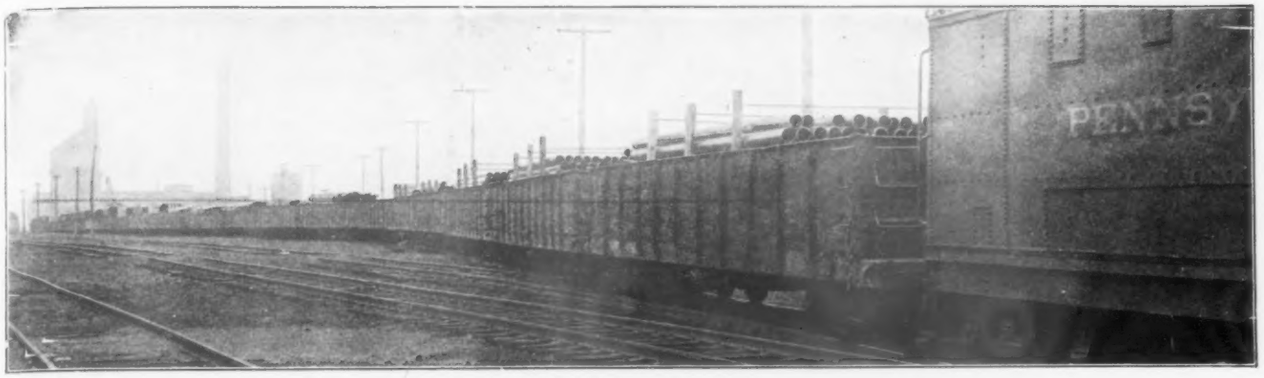
W. K. Henderson Iron Works & Supply Company,
Shreveport, La.

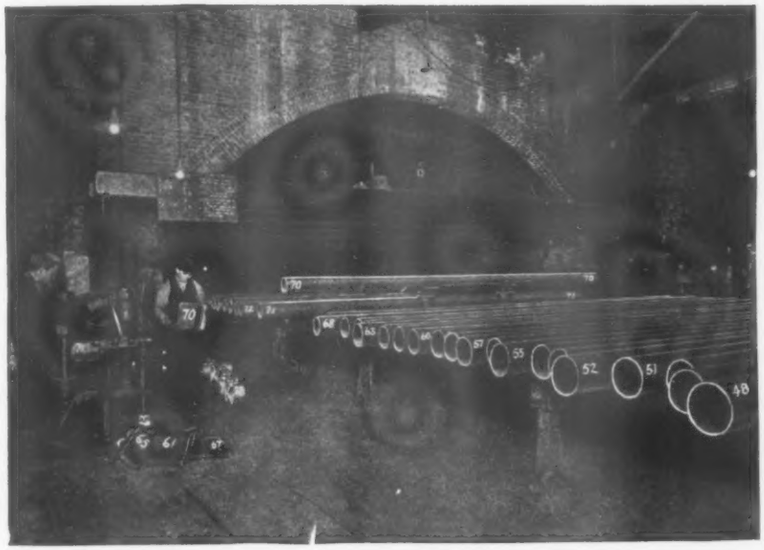
Pelican Well Tool & Supply Co.,
Shreveport, La.

CHESTER

STEEL CASING

SPECIALISTS IN CASING FOR DEEP WELL DRILLING





One Hundred Miles of Plain End Welded Pipe Without a Single Leak

Field test on the one hundred mile line, of which these trainloads were a portion, demonstrated the free welding qualities of South Chester Pipe resulting from extreme care in selection of raw material and the freedom from crystallization and lamination so important in welded lines.

The unusual care which South Chester gives to Crusher Tests and all other tests and inspections makes for satisfactory service in the line.

Chester also makes all classes of Genuine Wrought Iron Tubular Goods

South Chester Tube Company, — Chester, Pa.

DISTRICT SALES MANAGERS

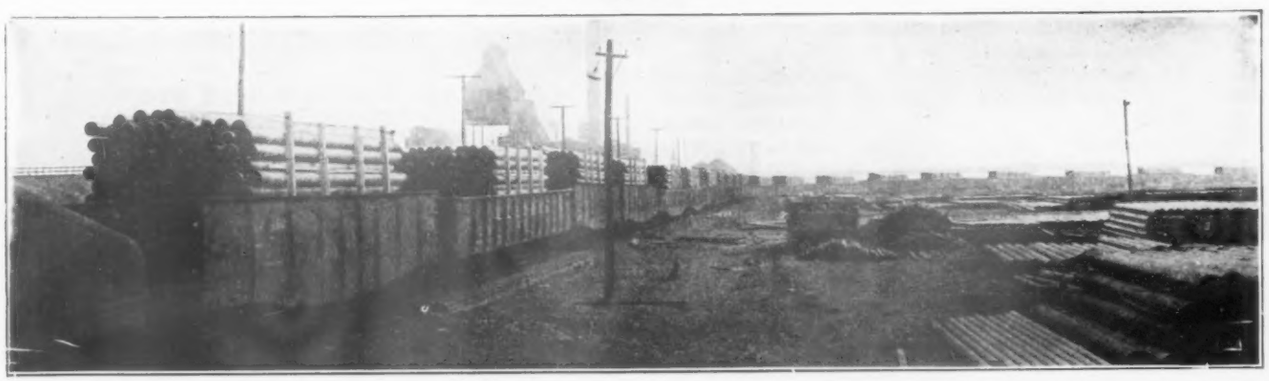
W. E. Gibson, 801 Columbia Bank Bldg., Pittsburgh, Pa.
H. A. Morse, 30 Church St., New York City
J. P. Cooney, 715-716 A. G. Bartlett Bldg., Los Angeles, Cal.

DISTRICT OFFICES

Tulsa, Oklahoma—J. D. Swartz, 1231 South Evanston St., Tulsa, Oklahoma
Wichita Falls, Texas—E. L. Moseley, 3114 Tenth St., Wichita Falls, Texas
Houston, Texas—P. H. Selk, Jr., 2108 Mills St., Houston, Texas
District Warehouses—Houston, Texas; Thenard, Cal.

J. P. Steele, 305 Petroleum Bldg., Fort Worth, Texas

CHESTER LINE PIPE



trial uses. Clamp Joint (no bolts) Steel Derrick.
Representatives: R. W. Mauthe, E. C. Hinkefent, A. L. Day, Duke Merrill, Grady Sullivan, H. V. Carter, L. E. Bales (Dallas) office).

BRADEN STEEL & WINCH COMPANY
Tulsa, Oklahoma

20 x 30, Outside Space.
(See Hopkins Equipment Corporation)

C. F. BRAUN & CO.
Alhambra, California

Booths No. 83 and 128 Oklahoma Building
Exhibit: Photographs only, of the following: Complete Absorption Plants; Refiner and Absorption Plant Bubble Towers; Heat Exchangers, Coolers and Condensers; Cooling Towers.
Representatives: R. E. Playter, R. H. Turner, H. D. McCament.

BREWSTER MANUFACTURING COMPANY
Shreveport, Louisiana

60 x 70, Open Air Space.
(See W-K-M Company).

BRISTOL COMPANY
Waterbury, Connecticut

Booths Nos. 1-2 Scientific Building

BRODERICK & BASCOM ROPE COMPANY
St. Louis, Missouri

Booth No. 80 Oklahoma Building
Exhibit: Various sizes, grades and constructions of Wire Rope used in the Oil Fields.
Representatives: O. F. Torbron, T. E. Alexander, E. C. Born, Fred Zimmerman, E. M. Stephanus, J. K. Broderick.

THE BROWN INSTRUMENT COMPANY
Philadelphia, Pennsylvania

Booths Nos. 37-38 Scientific & Technical Building
Exhibit: A Recording & Controlling Furnace Control Pyrometer; a Recording & Controlling Oil Pyrometer with safety feature; a new Tower Follow-up type of temperature control; a Remote Recording Vacuum Control or Barometer; a Remote Recording & Controlling Liquid Level Instrument; a Recording Pressure Gauge; a Recording Flow Meter with glass orifice assembly; an Indicating Pyrometer with multi-point switch; a Gauge-board Clock; an Indicating Resistance Thermometer capable of reading body temperatures.
Representatives: F. M. Poole, district manager; G. S. Younkin, sales engineer; J. V. Mannion, service engineer; R. W. Groendycke, service engineer.

BROWN-LIPPE GEAR COMPANY
20 x 30, Lot H.
(See Hopkins Equipment Corporation)

THE BUDA COMPANY
Harvey, Illinois

Booths Nos. 67-68-69-70 Oklahoma Building
Exhibit: One Buda-M.A.N. Diesel Engine, 92 h.p.; one Buda-M.A.N. Diesel Engine, 180 h.p.; one Gasoline Unit, JH-4; one Gasoline Unit, JH-6; one WTU Lighting Plant Unit.
Representatives: H. M. Sloan, general sales manager; R. K. Mangan, sales manager; P. J. Dasey, manager, Tulsa office; A. F. Ochtman, sales engineer.

BUHL AIRCRAFT CORPORATION
Marysville, Michigan

Aviation Section.

BULLARD-DAVIS, INC.
San Francisco, Calif.-New York, N. Y.

Booth No. 81 Oklahoma Building
Exhibit: Cumbustible Gas Indicator; Eveready Safety Flashlight; Davis Gas Mask — Canister & Air type; Davis Inhalator; Hard Boiled Hats; Wilson Goggles and Respirators; Davis unit type First Aid Equipment; Eveready Danger Flasher.
Representatives: B. F. McDonald, sales manager; J. J. Delahide, assistant manager.

BURDETTE OXYGEN COMPANY
Fort Worth, Texas

Booth No. 64 Texas Building
(See Modern Engineering Company)

THE BURDICK ENAMEL SIGN COMPANY
Chicago, Illinois

10′ x 10′ Track.
Exhibit: Porcelain Enamel Pump Signs and other suitable signs used by Oil Companies.
Representative: J. A. Hardin, Tulsa, Oklahoma.

BURNS SPECIALTY COMPANY, INC.
Haynesville, Louisiana

10′ x 40′ Open Air Space.

THE BURT CORPORATION
Tulsa, Oklahoma

Booths Nos. 4-5 Texas Building
Exhibit: Burt Swabs and Swab Rubbers, in complete units, parts, and cross sections.
Representatives: L. G. Burt, R. R. Sloan.

C. H. & E. MANUFACTURING COMPANY
Booths Nos. 87-88-123-124 Oklahoma Building
(See C. F. Camp).

CALIFORNIA OIL WORLD
Los Angeles, California

10′ x 10′ Open Air Space.

A. S. CAMERON STEAM PUMP WORKS
30 x 45, Lot E.
(See Ingersoll-Rand, Inc.)

THE CAMERON TOOL & SUPPLY CO.
Cameron, West Virginia

Booth No. 58 Oklahoma Building
Exhibit: The "Talon Line" Rope Grabs and Spears; the Monroe "Talon" Friction Socket; Akins Under-driller Bit; the Monroe Torpedo Spiral Bit; the Boltless Safety Drive Clamps.
Representatives: Verne Monroe, president; L. D. Reese; E. J. Akins.

C. F. CAMP
Tu'sa, Oklahoma

Booths Nos. 87-88-123-124 Oklahoma Building

CATERPILLAR TRACTOR COMPANY
Booths Nos. 87-88-123-124 Oklahoma Building
(See C. F. Camp).

CHAIN BELT COMPANY
Milwaukee, Wisconsin

Booths Nos. 11-12 Texas Building
Exhibit: Rex Chabelco 1030 DW3; Rex Chabelco 1240 DW4.
Representatives: C. F. Messinger, J. C. Merwin, A. R. Abelt, Brinton Welser, M. G. Jewett, J. M. Smallshaw, R. G. Davis, R. A. Shilbauer.

THE CHAPLIN-FULTON MFG. CO.
Pittsburgh, Pennsylvania

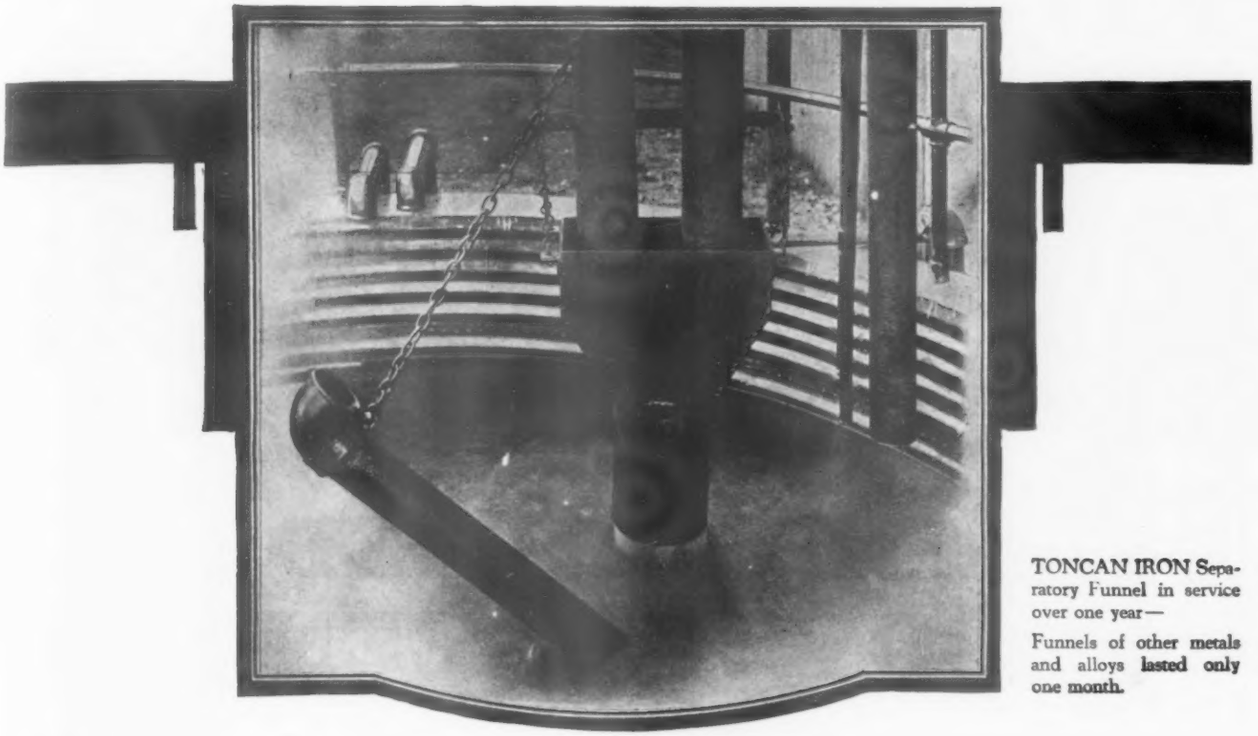
Booth No. 57 Scientific & Technical Building
Exhibit: Fulton High Pressure Regulators; Fulton Low Pressure Regulators; Fulton Duplex Sensitive Governors; Fulton Back or Check Pressure Regulators; Fulton Vacuum Regulators; Fulton Back Pressure Regulators with automatic cutout latch; Fulton House Service Regulator, weight and level type; Fulton House Service Regulators, spring style; Fulton Weighted Illuminating Regulators; Fulton Gas Fuel Boiler Governors; Fulton Gas Relief Valves for Natural Gas Gasoline Plants; Fulton Low Pressure Dead Weight Safety Valves; Fulton Cutout Latch Regulator; Fulton High Pressure Spring Regulator; Vigilant Liquid Level Regulators (Remote Control).
Representatives: Thos. H. Thorn, assistant engineer; F. N. Goedert, foreman.

CHICAGO BRIDGE & IRON WORKS
Chicago, Illinois

Booths Nos. 80-81 Texas Building
Exhibit: Wiggins Floating Roof Model; Wiggins Breather Roof Model.
Representatives: H. B. Murphy, Dallas; J. R. Donaldson, Dallas; Dean Miller, Dallas.

CHICAGO PNEUMATIC TOOL CO.
New York City

Booth No. 71 Texas Building
Exhibit: C. P. Tucone Rock Bit. This is manufactured by



TONCAN IRON Separatory Funnel in service over one year—

Funnels of other metals and alloys **lasted only one month.**

"Where Acid-Resisting metals are required— Toncan Iron will be specified"

THIS quotation is from a letter voluntarily written us by the superintendent of a large western refinery.

Prior to their use of Toncan Copper Molybdenum Iron for the separatory funnel illustrated, monthly replacements were a regular occurrence. The sulphur compounds in the oil quickly destroyed other ferrous metals and alloys.

It is now over one year since they installed the Toncan Copper Molybdenum Iron funnel—and a recent inspection shows no corrosion or other evidence of wear.

Here, again, Toncan Copper Molybdenum Iron has solved a troublesome corrosion problem and eliminated frequent costly shut-downs for repairs.

TONCAN COPPER Molyb-den-um IRON

CENTRAL ALLOY STEEL CORPORATION

Massillon, OHIO

World's Largest and Most Highly Specialized Alloy Steel Producers

Cleveland Detroit Chicago New York St. Louis Syracuse
Philadelphia Los Angeles Seattle Cincinnati San Francisco

Export Dept: New York Central Building, New York, N. Y.

TONCAN COPPER MO-LYB-DEN-UM IRON

THE LAYNE

(EVERYTHING BELOW THE CASING)

FAMOUS MILLED GROOVE SCREEN

The "Milled Grove" has been the greatest development in screen design offered the industry in years. Instead of the straight drilled hole the sloped groove feeds the flow into the drilled hole from a much increased area—YET the strength of the pipe has not been weakened. The same EXCLUSIVE, practical safe Keystone wire wrapped method is employed as has been the case with Layne screens for many years.

This new type screen is a SPECIAL tonic for low pressure wells—less "clogging" up with mud or sand. Now used by the industry's leading operators.

Particulars sent on request.

The Layne & Bowler Co.

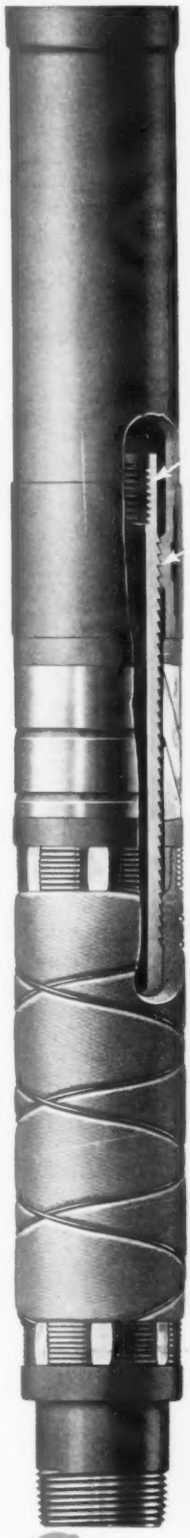
HOUSTON, TEXAS

THE LAYNE NEW YORK CO.,
30 Church St., New York City

THE LAYNE & BOWLER CORP.,
Los Angeles, Calif.

PRODUCTS

(EVERYTHING BELOW THE CASING)



FAMOUS

"Double Seal"

PACKER

"Layne," Lead cone and canvas ratchet packer.

This is probably the most popular packer in use today. Left hand buttress threads, shallow cut do not weaken the pipe — packer does not uncollapse when exposed to high gas pressure; unscrew and partially release the packing if it is desired to pull the packer. Three lead rings accurately machined are perfectly fitted around the stem above the canvas packing. The canvas is of eight ounce duck, extremely strong and durable yet easily compressed to great hardness, thereby insuring a perfect pack the full length of the collapsed section.

For the most PACKER satisfaction use a Layne.

Other Layne products include set shoes, Back pressure valves, settling tools, swivels, etc.

The Layne & Bowler Co.

HOUSTON, TEXAS

VICKERS, LIMITED
London, England

THE LAYNE & BOWLER CORP.,
Los Angeles, Calif.

the C. P. under the C. E. Reed patents and was designed primarily to drill straighter and faster holes.
Representatives: A. H. Collins, Guy Danielson, Harry Yarbrough, Forrest Hurst.

CHICAGO PUMP COMPANY

20 x 20, Lot B.
(See Federal Steam Specialties Company)

CHICAGO STEEL & WIRE CO.
Chicago, Illinois

10' x 10', Lot F.

CHILTON CLASS JOURNAL CO.
Philadelphia, Pennsylvania

Booths Nos. 40-41 Oklahoma Building

CHRISTIE BURNER COMPANY, INC.
Tulsa, Oklahoma

Booth 19 Arcade
Exhibit: Christie Low Pressure Gas Burner.
Representatives: H. W. Christie, R. O. Stekoll.

CLARK BROS. COMPANY
Olean, New York

30' x 80', Lot A.
Exhibit: 120 h.p. Drilling Engine with two speed Clutch; 90 h.p. Gas Engine Driven Generator; 40 h.p. Combination Compressor or Pumping Engine; Vickers Releasing Overshots; Vickers Adjustable Wrist Pins; Northern Pump Company Equipment; Weber Insulations, Inc., Equipment; Lan Supply Company of Oklahoma City Products.
Representatives: C. P. Clark, W. G. Cummings; J. B. O'Connor, D. K. Hutchcroft, F. B. Dunlop, G. W. Probst, Orrin F. Matthews, Vickers Machine Works, Smackover, Arkansas; R. N. Vickers, Vickers Machine Works, Smackover, Arkansas.

CLARK MACHINE COMPANY
Wichita Falls, Texas

Outdoor Space.
Exhibit: Model 61 Wichita Falls Spudder in full operation.
Representatives: W. J. Edwards, R. Ward Lowe, W. H. Ealy.

CLIMAX ENGINEERING COMPANY
Clinton, Iowa

Booths Nos. 76-77-135 Oklahoma Building
Exhibit: The Drillmaster Drilling Engine; the Climax Reverse Clutch.
Representatives: L. L. Machia, manager of Oil Field sales; L. E. Williamson, Oklahoma representative; E. H. Crippen, Texas representative.

COCHRANE CORPORATION
Philadelphia, Pennsylvania

Booths Nos. 8-9 Scientific & Technical Building
(See Refinery Supply Company).

COLONA MANUFACTURING CO.
Pittsburgh, Pennsylvania

Booths Nos. 1-2 Texas Building
Exhibit: Pipe-Thread Protectors; Coupling Protectors; Sucker-Rod Protectors.
Representatives: John P. Hoelzel, vice-president; Frank B. Gordon, vice-president; Harry W. Schuetz, field representative; Geo. Cornelius.

CONTINENTAL SUPPLY COMPANY
St. Louis, Missouri

Special Continental Building Outside.
Exhibit: Products of the following manufacturers will be shown: The Youngstown Sheet & Tube Co.; Goodall Semi-Metallic Hose & Mfg. Co.; D. & B. Pump & Supply Company; Westcott Valve Company; The Mechanical Rubber Company; New Bedford Cordage Company; Tnemec Paint & Oil Company; Walworth Company; Southwark Foundry & Machine Co.; MacClatchie Mfg. Co.; Emsco Derrick Equipment Company; Fairbanks, Morse & Co.
Representatives: H. B. Gutelius, C. H. Meyer, H. E. Spencer and C. W. King. Also field men from various districts.

THE COOPER-BESSEMER CORPORATION
Mount Vernon, Ohio

Lot G.
Exhibit: Bessemer Type O.F. Pumping and Drilling Engine; Bessemer Type 10 Gas Engine Compressor; Bessemer Diesel Type EP.-3-Auxiliary Power Unit.
Representatives: T. F. Hudgins, B. L. Potter.

CORNING GLASS WORKS
Corning, New York

Booths Nos. 8-9 Scientific & Technical Building
(See Refinery Supply Company).

COWDEN MANUFACTURING COMPANY
Kansas City, Missouri

10' x 15' Open Air Space.
Exhibit: Cowden Service Station Uniforms in a wide variety of fabrics and designs; Bosche Embroidery Company Products.
sales manager; Ben H. Johnson, Oklahoma representative.

CROSBY STEAM GAUGE COMPANY
Boston, Massachusetts

Booths Nos. 39-40-55-56 Scientific & Technical Building
(See Westcott & Greis).

CUMBERLAND PIPE LINE COMPANY

Booth No. 18 Scientific & Technical Building

DARLING VALVE & MANUFACTURING COMPANY
Williamsport, Pennsylvania

Booths Nos. 98 and 113 Oklahoma Building
Exhibit: Darling Forged Steel Gate Valves for well control and Forged Steel Straight Line Valves for flow lines, pipe lines, etc.; Darling Darvel Semi-Steel Gate Valves for all branches of the oil and gas industry; Darling Darvel Semi-Steel Swing Check Valves for all branches of the oil and gas industry; Darling Fire Hydrants, Indicator Posts and Gate Valves for water mains and fire lines.
Representatives: J. S. Kiesel, mechanical engineer, main office, Williamsport, Pa.; Earl J. Connelly, upper Mid-Continent district sales manager, 414 First National Bank Bldg., Oklahoma City, Okla.; Frank Cavenagh, lower Mid-Continent district sales manager, 321 West Building, Houston, Texas; A. G. Smith, vice-president; R. H. Thorne, president.

DAVIS BORING TOOL COMPANY

Booth No. 109 Texas Building
(See Larkin Packer Company).

G. M. DAVIS REGULATOR COMPANY
Chicago, Illinois

Booths Nos. 39-40-55-56 Scientific & Technical Building
(See Westcott & Greis).

DAVIS TANK COMPANY

15 x 30, Lot G.
(See Indiana Trucks, Inc.)

DEARBORN CHEMICAL COMPANY
Chicago, Illinois

Booth No. 105 Texas Building
Exhibit: NO-OX-ID, the original chemically compounded Rust Preventive, and its new development; NO-OX-ID-IZED Wrappers—Brown Fabric Wrapper — Asbestos Wrapper — impregnated and coated with NO-OX-ID and NO-OX-ID-IZED Gray Fabric Wrapper Chemically Treated; Dearborn Powdered and Liquid Cleaners.
Representatives: E. M. Converse, G. M. Massen, W. T. Cushing, T. F. Kittredge, J. C. Hill, B. E. Conley, J. B. McCulley.

DeFOREST RADIO CORPORATION

Booth No. 17 Arcade
(See Electric Supply Company.)

DES MOINES FOUNDRY & MACHINE COMPANY
Des Moines, Iowa

Lot "A" Clark Building

DeSOTO MACHINERY & FOUNDRY COMPANY
Mansfield, Louisiana

60 x 70 Open Air Space.
(See W-K-M Company).

DETROIT STEEL PRODUCTS COMPANY
Detroit, Michigan

Booths Nos. 132-133 Oklahoma Building
(See Braden Steel Corporation)

THE DEVILBISS COMPANY
Toledo, Ohio

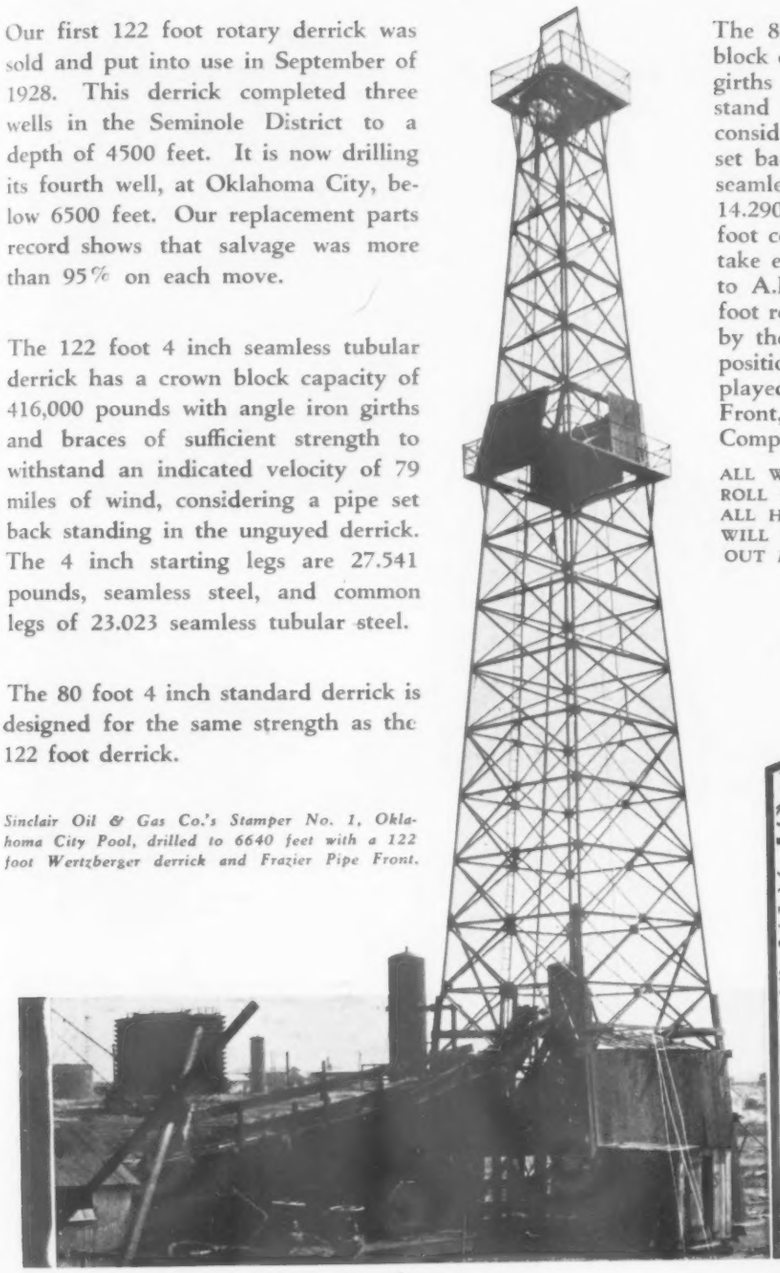
Booth Nos. 31 and 32 Oklahoma Building
Exhibit: Our exhibit will consist of such items of our stan-

TRIED AND PROVED IN THE FIELD

Our first 122 foot rotary derrick was sold and put into use in September of 1928. This derrick completed three wells in the Seminole District to a depth of 4500 feet. It is now drilling its fourth well, at Oklahoma City, below 6500 feet. Our replacement parts record shows that salvage was more than 95% on each move.

The 122 foot 4 inch seamless tubular derrick has a crown block capacity of 416,000 pounds with angle iron girths and braces of sufficient strength to withstand an indicated velocity of 79 miles of wind, considering a pipe set back standing in the unguyed derrick. The 4 inch starting legs are 27.541 pounds, seamless steel, and common legs of 23.023 seamless tubular steel.

The 80 foot 4 inch standard derrick is designed for the same strength as the 122 foot derrick.

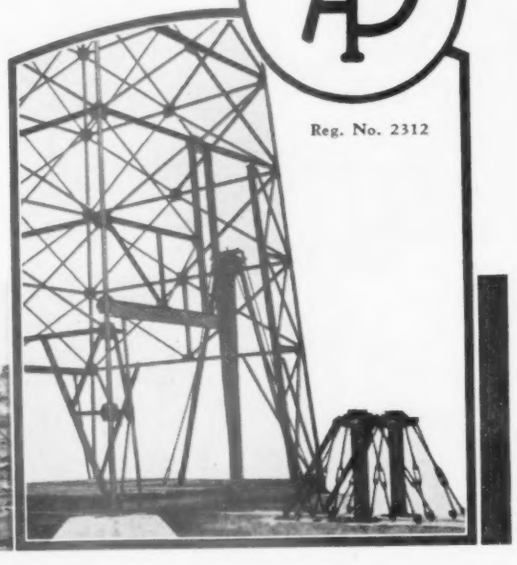


Sinclair Oil & Gas Co.'s Stamper No. 1, Oklahoma City Pool, drilled to 6640 feet with a 122 foot Wertzberger derrick and Frazier Pipe Front.

The 80 foot 3 inch standard drill has a crown block capacity of 240,000 pounds, with angle iron girths and braces of sufficient strength to withstand an indicated velocity of 70 miles of wind, considering the horizontal component of a pipe set back. 3 inch starting legs are 18.583 pounds seamless tubular steel and the common legs are 14.290 pounds seamless tubular steel. Our new 94 foot combination rotary and standard derrick will take either 3 or 4 inch starting legs and is made to A.P.I. specifications and standards. The 122 foot rotary derrick will be set up and in operation by the Doheny-Stone Drill Company on the Exposition ground. A 94 foot drill will also be displayed, together with the famous Frazier Pipe Front, distributed by the Wertzberger Derrick Company.

ALL WERTZBERGER DERRICKS HAVE *NEW* 40-50 HOT ROLL CARBON SEAMLESS MECHANICAL TUBING, AND ALL HAVE 5′ 6″ TOPS. ALL WERTZBERGER DERRICKS WILL WITHSTAND THE LOADS GIVEN ABOVE WITHOUT *RELEGS*.

View of the Frazier Pipe Front

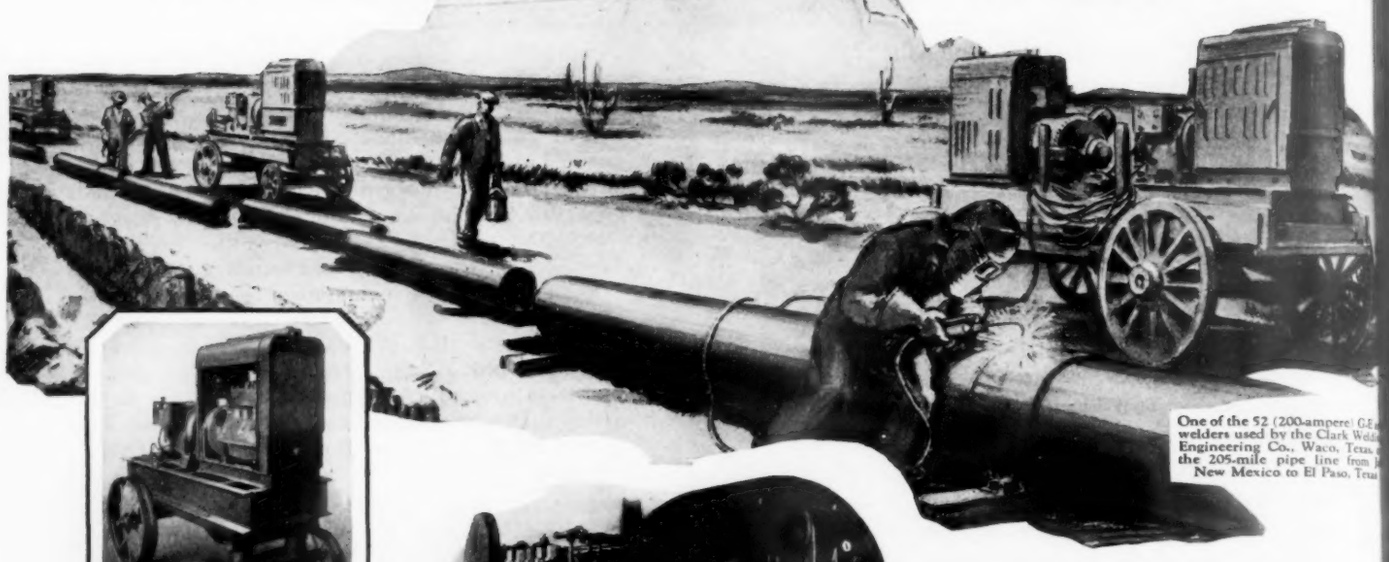


Reg. No. 2312

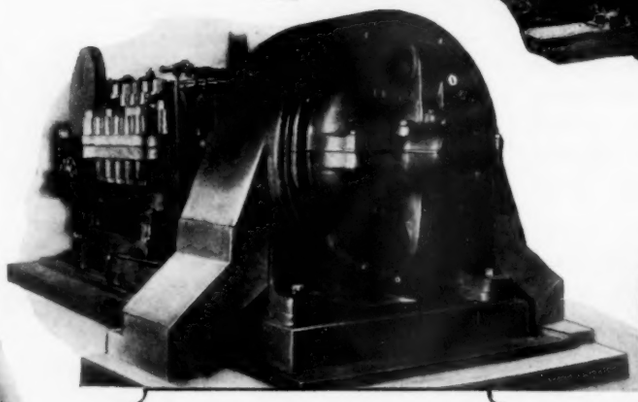
WERTZBERGER Derrick Company

TULSA, OKLA.

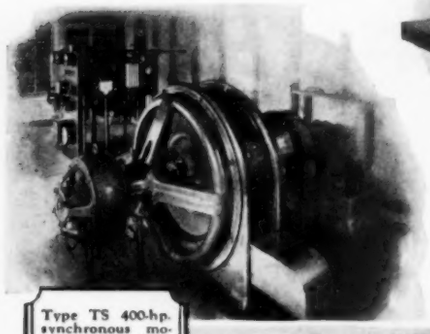
Modern

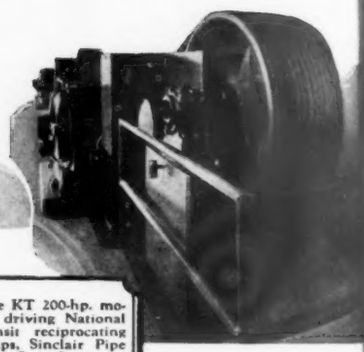


One of the 52 (200-ampere) G-E welders used by the Clark Welding Engineering Co., Waco, Texas, on the 205-mile pipe line from Jal, New Mexico to El Paso, Texas



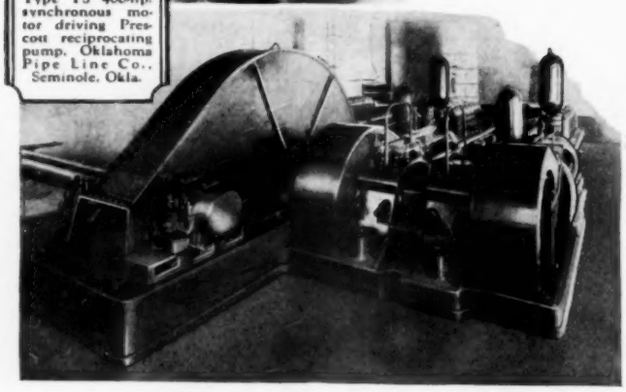
One of the largest motor-driven units in service. G-E 1000-hp. motor driving Cameron pump in station of Standard Pipe Line Co., Mandenville, Ark.

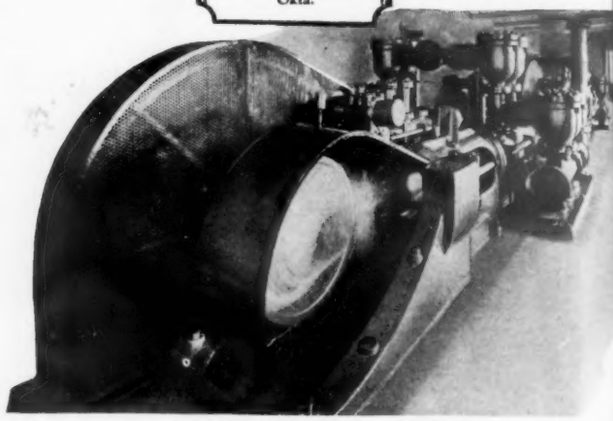




Type KT 200-hp. motors driving National Transit reciprocating pumps, Sinclair Pipe Line Co., Seminole, Okla.

Type TS 400-hp. synchronous motor driving Prescott reciprocating pump, Oklahoma Pipe Line Co., Seminole, Okla.





GENERAL

Pipe Lines
built and operated *with* G-E equipment

MOVING the crude from the producing well to the refinery—keeping alive the thousands of miles of pipe-line networks—is a responsibility which G-E electric equipment is shouldering in the development of modern pipe lines.

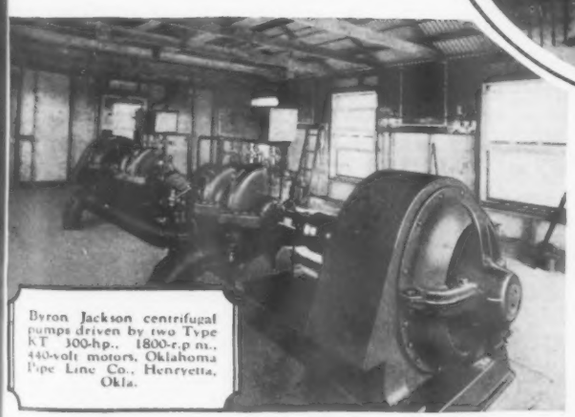
Mile after mile of new pipe line is being built with G-E arc-welding sets. And G-E motors and controllers are operating hundreds of pumps, both reciprocating and centrifugal.

Electric arc welding is faster and more economical, and produces a superior joint —that is why the trend of pipe-line construction is definitely toward arc welding.

General Electric motors have proved their worth in years of operations on pipe lines. Now, a new application is announced which means new economies for the operator. This method assures maximum station pressure, regardless of the viscosity of the oil, by utilizing a slip-ring motor on a low-head, full-capacity centrifugal pump.

Inquire at the nearest G-E office for full information on General Electric apparatus which is contributing to the development of the petroleum industry in all its phases.

Master control panel, incoming-line panel, and three automatic compensators for 250-hp., 2200-volt induction motors, Magnolia Pipe Line Co. Bowie, Texas



Byron Jackson centrifugal pumps driven by two Type KT 300-hp., 1800-r.p.m., 440-volt motors, Oklahoma Pipe Line Co., Henryetta, Okla.

Six Type KT 250-hp., 1600-r.p.m., 2200-volt motors driving Worthington centrifugal pumps, Magnolia Pipe Line Co., McComb, Okla.

ELECTRIC

200-285 A

G-E oil field specialists and G-E service at: Dallas, Denver, Houston, Kansas City, Oklahoma City, Tulsa, Los Angeles, San Francisco.

dard spray-painting equipment as are of interest to the oil industry. We will show our line of portable air compressing outfits, both electric motor and gas engine driven. These outfits will range in size from our smallest ¼ H.P. unit to our largest standard outfit operated by a 9 H.P. gas engine. We will show our line of spray guns, air and fluid hose, air conditioning equipment, material containers and exhausting equipment.

Representatives: Mr. O. F. Wilcox, Mr. W. H. McCracken.

DeWALT PRODUCTS CORPORATION
Leola, Pennsylvania

Booth No. (Space occupied by the Republican Convention headquarters last year) Outside Building

Exhibit: DeWalt "Wonder-Worker".

Representatives: Mr. Robert H. Mulch, general sales manager; Mr. J. O. Parnell, district sales manager; Reliable Hdw. Tool & Mill Supplies Co., Tulsa, distributor.

JOS. DIXON CRUCIBLE COMPANY
Jersey City, N. J.

Booth No. 93 Oklahoma Building

DODGE ELECTRIC COMPANY
Tulsa, Oklahoma

Booth No. 79 Oklahoma Building

Exhibit: A display of the motor department which is equipped to rewind and repair any type or make of motor. Exhibit will display quality of the work and also the famous U. S. Ball Bearing Motor with Asbestos Protected Winding. Also Pulleys, Motor Bearings for all standard makes of electric motors and vapor proof lighting fittings.

Representatives: Mr. L. A. Bartlett, supt.; Mr. C. H. Veale, vice-pres.; Mr. H. A. McHarness, foreman Motor department.

DOHENY STONE DRILL CO.
Los Angeles, California

Booth 30′x70′ Open Air.

DONNER ENGINEERING COMPANY
Tulsa, Oklahoma

Booth 10′x15′ Lot H

DRANE-HUMPHREY COMPANY, INC.
San Angelo, Texas

Booth No. 11 Scientific Building

DRESSER & GORTON, INC.
Tulsa, Oklahoma

Booth 20′x30′ Open Air

Ehhibit: Anchor Post Fence Company Products; Machine Tool & Supply Company Products; Oil States Mfg. Company Products.

DURAMETALLIC CORPORATION
Kalamazoo, Michigan

Booth No. 111 Oklahoma Building.

Exhibit: Durametallic in the original Spiral in three grades; Durametallic in the new Core type of Spiral in three grades; Durametallic in a number of ring set designs and assemblies; Dura Plastic in bulk and in Die molded from Durametallic Gaskets.

Representatives: Mr. T. P. Curley, Oklahoma City; Mr. A. A. Gallman, Oklahoma City; Mr. C. C. Hall, vice-president, Kalamazoo, Michigan; Mr. J. M. Bandish, Chicago, Illinois.

THE EAGLE-PICHER LEAD COMPANY
Chicago, Illinois

Booth Nos. 49 and 50 Texas Building

Exhibit: Eagle Lead Wool, Eagle Lead Wool Cartridge Container, Oil Refiners' Litharge, Sublimed Litharge, Chemical Sheet Lead, Lead Pipe, Eagle Dreadnaught, Eagle Outlasta and Eagle Durable Bearing Metals, Rope Socket Metal, White Lead in Oil and Sublimed Blue Lead.

Representatives: T. C. Carter, sales manager, Metal department, Southern District; F. W. C. Bailey, H. I. Shidel.

EDISON LAMP WORKS
Booth No. 17 Arcade Building
(See Electric Supply Company).

E. H. EDWARDS COMPANY
San Francisco, California

Booth No. 24 Texas Building

Exhibit: Wire Rope; large reel of 7/8″ Drilling Line.

Representatives: Mr. Parker B. Abbott, sales manager; Mr. L. P. Gorsling factory representative.

EISEMAN MAGNETO CORPORATION
Booth 20′x30′ Lot F
(See Magneto Ignition Corporation).

ELCO HEALTH GENERATOR
Booth No. 25 Arcade Building
(See H. Rickman).

ELECTRIC ARC CUTTING & WELDING COMPANY
Newark, N. J.

10 x 10 ft. Outside Space

ELECTRIC SUPPLY COMPANY
Tulsa, Oklahoma

Booth No. 17 Arcade Building

Exhibit: Pittsburgh Standard Conduit—Galvanized and Black Enamel; Paranite Insulated Wires and Cables; Unilet Fittings—Thread and No-Thread types; DeForest Radio Audions; Edison Mazda Lamps.

ELLIOTT CORE DRILLING COMPANY
Los Angeles, California

Booths Nos. 22-33 Texas Building
(See Hinderliter Tool Company)

B. V. EMERY COMPANY
Tulsa, Oklahoma

Booth No. 119 Texas Buildnig
(See Merco-Nordstrom Valve Company).

EMSCO AIRCRAFT CORPORATION
Downey, California

Aviation Section

ENAMELED METALS COMPANY
Booth No. 17 Arcade Building
(See Electric Supply Company).

EVERLASTING VALVE COMPANY
Booth 20′x20′ Lot B
(See Federal Steam Specialties Co.)

EVINRUDE MOTOR COMPANY
Booth 20′x20′ Lot B.
(See Federal Steam Specialties Co.)

FEDERAL MALLEABLE COMPANY
West Allis, Wisconsin

Booths Nos. 6-7 Texas Building
(See Sivyer Steel Casting Company).

FEDERAL STEAM SPECIALTIES CO.
Oklahoma City, Okla.

Outdoor Space—Block B.

Exhibit: Westco-Chippewa Turbine Pumps; Everlasting Valves, (Blow-off, Gasoline and Oil); Lakin Cooling Towers; Klipfel Specialties; Evinrude Pumping Units.

Representatives: W. J. Carr, mgr. Machinery Div., Federal Steam Specialties Co.; Fred Colbert, Louis Loeffler, John Allen, president Everlasting Valve Co.; Robert Siewert, Western manager Everlasting Valve Co.; Frank S. Main, sales manager, Westco-Chippewa Pump Co.; J. H. Lakin, president Lakin Mfg. Co.; N. W. Calvert, Klipfel Mfg. Co.

FERRO MACHINE & FOUNDRY CO.
Cleveland, Ohio

Booth 10′x20′ Open Air.

Exhibit: Pumps.

FIRST NATIONAL BANK & TRUST CO.
Tulsa, Oklahoma

Booth No. 4 Oklahoma Building

THE FISHER GOVERNOR COMPANY
Marshalltown, Iowa

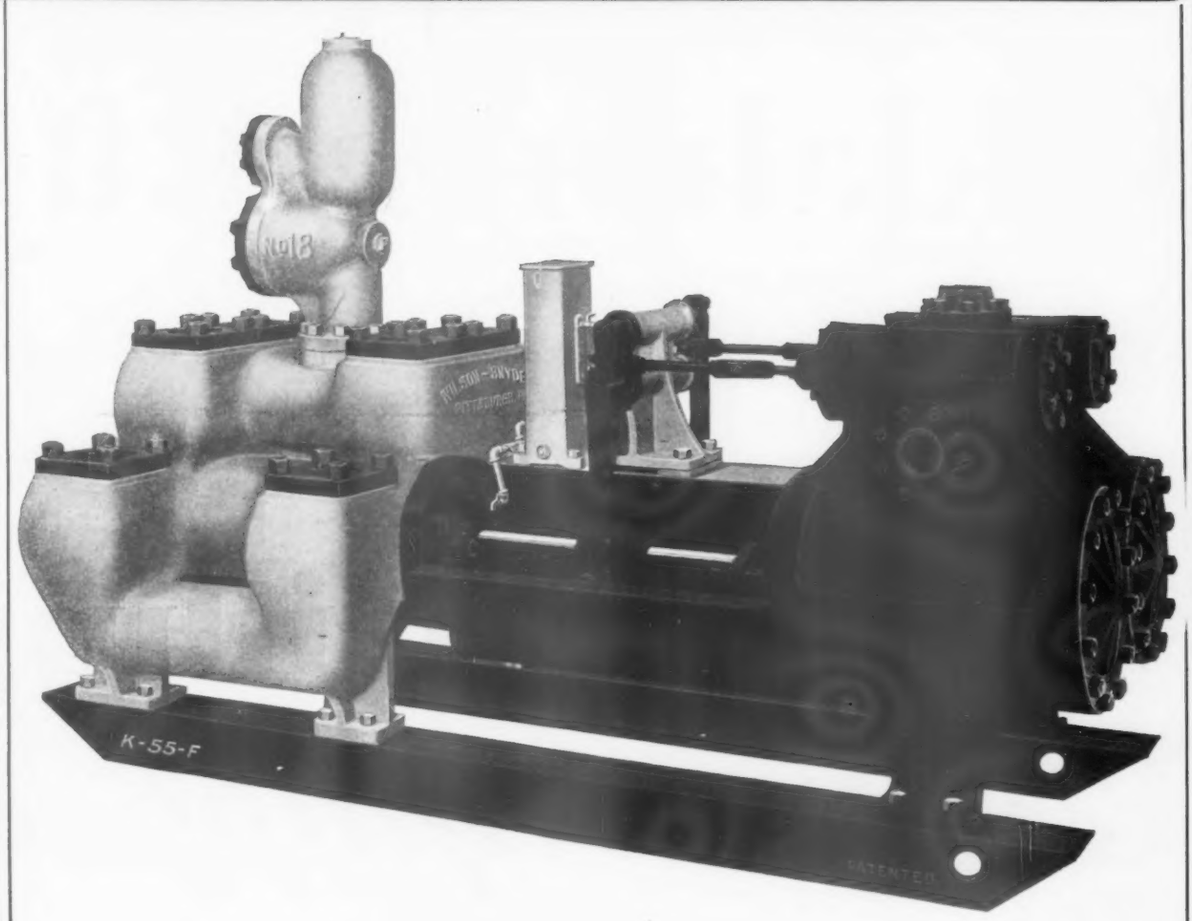
Booths Nos. 89 and 90. Texas Building

Exhibit: Liquid Level Controls; Reducing Valves; Vacuum Regulators; Back Pressure Valves; Gas Regulators; Pump Governors; Steam Traps; Gasoline Traps; Propane Regulators; Storage Tank Pressure and Vacuum Controllers. A complete line of Automatic Steam and Oil Field Specialties.

Representatives: Mr. L. W. Browne, treasurer and general

MURRAY

MID-CONTINENT DISTRIBUTORS



Wilson-Snyder No. 18

A long stroke slush pump that will increase your operations efficiency and capacity—backed by fifty years pump building experience. Write today for prices.

Distributors of
Lapweld Casing and Line Pipe
B.J. Rock Bit Cones and Side Reamers
Eureka Gas Burners
Spang Jars
Regan Equipment
Ajax Cordage
Sphero-Valves
Fairbanks Valves
Dart Unions
Drilling Tools
Fishing Tools Supplies
Pittsburgh Seamless Casing, Line Pipe, Drill Pipe

Murray Tool & Supply COMPANY INC.

General Offices Cleveland, Oklahoma
Tel. 39

Oklahoma Branches:
Oklahoma City, Tel. 3-7736
Pawhuska, Tel. 867
Seminole, Tel. 119
Tulsa, Tel. 4-0144
Yale, Tel. 55
Maud, Tel. 572
Texas:
Wink
Pampa, Tel. 894
Kansas:
Wichita Heights, Tel. Market 3326

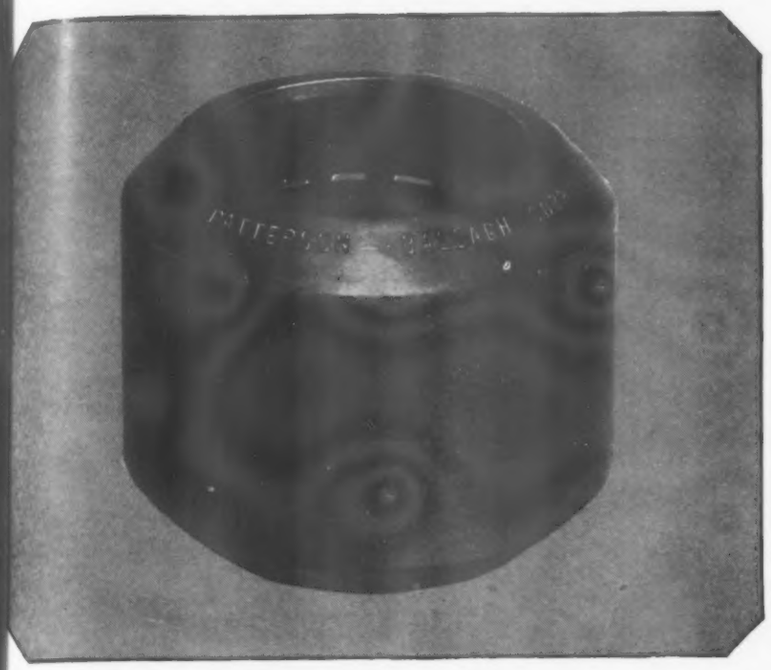
In Oklahoma City field

137 wells drilling

120 *Bettis-equipped*

"*Best bet yet!*"

Bettis *Protectors*



In Oklahoma City and every other active Rotary drilling field the careful Drillers demand Bettis.

Mr. Harrison Smith of the contracting firm of M. T. Smith & Son, Oklahoma City, is shown above, inspecting Bettis-equipped drill pipe on well being drilled for the I T I O Company.

More than 200,000
Bettis-Protectors now
serving the Industry
Now ready
1930 Bettis Catalog
—giving new facts about
rotary drilling
Ask for a copy

Patterson-Ballagh Corp.

Insurance Exchange Building, Los Angeles

Texas and Gulf Coast Distributors:
Bettis Sales Co., 616 Public Nat. Bank Bldg., Houston

Oklahoma Distributors:
Bailey & Becker Company, 2416 North Boston Place, Tulsa

New York Office: 39 Cortlandt St.
Carried in stock at Los Angeles, Santa Fe Springs, Ventura, Kettleman Hills, Bakersfield, Coalinga, Long Beach, Tulsa, Houston, Wink, Texas; Calgary, Alberta, Canada, New York City.

—The Original and Genuine

manager; Mr. Paul A. Elfers, engineer; Mr. Charles D. Peterson, engineer.

FLUOR CONSTRUCTION CO.
Los Angeles, California

Booths Nos. 94-95 Oklahoma Building

FORT WORTH WELL MACHINE & SUPPLY CO.
Fort Worth, Texas

24 x 50 ft. Open Air Space

Exhibit: 1—Model J. Fort Worth Spudder; 1—Super H Fort Worth Spudder.

Representatives: W. J. Brown, H. G. Parr, C. H. Stoner, Zack Biggers, R. L. McCann.

THE FOXBORO CO.
Foxboro, Mass.

Booths Nos. 4, 5, and 6. Instrument Building

Exhibit: Orifice Meter; Indicating Gauges; Flow Controller; Recording Gauges; Volume Controller; Valves; Temperature Controller; Orifice Flange Unions; Pressure Controller; Robinson Orifice Flange Fitting; Recording Thermometer.

Representatives: C. E. Sullivan, general sales manager; B. H. Bristol, factory superintendent; J. B. MacMahon, manager Tulsa office; C. L. Bryan manager Dallas office; L. K. Spink, flow measuring expert; R. L. Mallory, South American representative; R. A. Rockwell, sales engineer; E. R. Huckman, sales engineer.

FRANCE PACKING COMPANY
Tacony, Philadelphia

Booth No. 101 Oklahoma Building

Exhibit: Packing—Especially Metallic Packing.

FRANKLIN VALVELESS ENGINE COMPANY
Franklin, Pennsylvania

Booths Nos. 82-129 Texas Building

FRICK REID SUPPLY CORPORATION
Tulsa, Oklahoma

Booth 20 x 35 ft. Open Air

(See Joseph Reid Gas Engine Company).

FRITTS MANUFACTURING COMPANY
California

Booth 60 x 70 ft . Open Air

(See W-K-M Company, Inc.)

FRUEHAUF TRAILER COMPANY
Detroit, Michigan

Booth 30′x30′ Lot M

Exhibit: New Fruehauf Drop Frame Semi-Trailer for carrying 750 and 1000 gallon tanks; Fruehauf Standard Semi-Trailer with Stake Body; New Fruehauf Pole Trailer especially designed for use in the oil fields.

Representatives: W. E. Fletcher, manager of Oil Division; C. L. Schneider, regional manager; C. B. Caswell, regional manager; M. M. Williamson, Tulsa representative; J. W. Youngblood, Dallas representative.

FUSION WELDING CORPORATION
Chicago, Illinois

Booth No. 10. Arcade Building

Exhibit: An exhibit in full operation will be presented, showing many new applications of welding developed by the company's Research Laboratories for the various branches of the Petroleum Industry. New Weldite Welding Rods for gas and metallic arc pipe line welding will be demonstrated. The Fuson Line of Arc Welding Generators will be shown in operation. Machines for the shop and one for extremely long range will be demonstrated.

Representatives: L. F. Collins, general sales manager; R. W. Holt, research engineer; M. P. Hare, Tulsa branch manager; Dana Summers, general superintendent; R. F. Beazell, engineer in charge.

GARLAND AIRCRAFT CORPORATION
Tulsa, Oklahoma

Aviation Section.

THE GARLOCK PACKING COMPANY
Palmyra, New York

Booth No. 30. Texas Building

Exhibit: Fibrous, Rubber and Metal Packing for Production and Refinery Service.

Representatives: Phil Arnold, in charge of sales, Cleveland, Ohio; E. N. Fox, manager of Metal Packing Department, Palmyra, N. Y.; F. E. Erlandson, district manager, St. Louis, Missouri; W. A. Redd, Jr., district manager, Birmingham, Alabama; J. M. Foley, sales representative, St. Louis, Missouri; G. C. Weida, sales representative, St. Louis, Missouri.

GATES HARDWARE COMPANY
Tulsa, Oklahoma

Booth 10′x20′ Open Air.

GENERAL AMERICAN TANK CAR CORP.
Tulsa, Oklahoma

Booth 10 x 45 ft. Track

GENERAL ELECTRIC COMPANY
Schenectady, N. Y.

Booths Nos. 76-77-134-135. Texas Building

Exhibit: Motors and control for drilling, pumping and refining will be included in the exhibit. Arc welding and atomic hydrogen welding sets will also be shown in operation. An educational exhibit from the G. E. research laboratories will also be on display. "Casey Jones" the popular toy train which obeys commands transmitted to it through the medium of an ordinary telephone transmitter will also be included in the exhibit.

Representative: W. A. Gluesing.

GILBERT & BARKER
Tulsa, Oklahoma

Booths Nos. 14-15. Oklahoma Building

L. H. GILMER COMPANY

Booth No. 13. Texas Building

(See Smith-Milligan Electric Company).

GLOBE MACHINERY & SUPPLY COMPANY
Des Moinès, Iowa

Outside Space.

B. G. GOBLE
Tulsa, Oklahoma

Booth 10′x30′ Open Air.

GRANGER INDICATOR COMPANY
Whittier, California

Booth 10′x12′ Outside.

GRIMM STAMP & BADGE COMPANY
St. Louis, Missouri

Booth 10′x10′ Track Space.

(See Burdick Enamel Sign Company).

GRISCOM-RUSSELL COMPANY
New York, N. Y.

Booths Nos. 42-43 Oklahoma Building

THE GUIBERSON CORPORATION
Dallas, Texas

Booths Nos. 38 and 39 Oklahoma Building

Exhibit: Guiberson Swab; Guiberson Tubing Catcher; Guiberson Tool Joint Tong; Guiberson Underreamer; Guiberson Control Head Packer; Guiberson Tubing Oil Saver; Guiberson Spiral Plugs and Packers; Guiberson Tubing Stripper; Guiberson Disc Bit.

Representatives: S. A. Guiberson, Jr., president; W. R. Guiberson, vice-president; N. G. Guiberson, vice-president; D. W. Henke, treasurer; H. M. Haseltine, sales manager; Kenneth W. Reed, works manager; James H. Walker, manager California branch; C. S. Crickmer, chief engineer; J. B. Duff and M. T. Kappele in charge of exhibits.

GULF PUBLISHING COMPANY
Houston, Texas

Booth 18′x18′ Open Air.

HALLIBURTON OIL WELL CEMENTING CO.
Duncan, Oklahoma

Booth No. 8—in part of Lot D. Arcade

Exhibit: One complete Cementing Equipment mounted on 3½ ton F.W.D. 6 cylinder Truck with pneumatic tires, five speed transmission and special power take-off. The cementing equipment will be of the very latest type, all fittings, pumps, etc., will be of such design to withstand higher pressure which are necessary where deeper wells are drilled.

Representatives: W. H. Baker, district superintendent; I. B. Cates, district superintendent; Clem S. Clarke, district superintendent; Gale B. DeWitt, district superintendent; H. C. Gloeckler, vice-president; Erle P. Halliburton, president; H. T. Crain, secretary-treasurer; Geo. Toisington, district superintendent; W. R. McClendon,

Air Lift *Quickly Installed with* Electric Power

ELECTRIC POWER Driven Compressors have been installed over-night in a great many cases, thus giving the operators at least fifteen days additional production in comparison with the more cumbersome method of building foundations and moving engines. The importance of this quick installation cannot be stressed too strongly. The ease and short time required to install motors on a well after it reaches the sand are the deciding factors in favor of ELECTRIC POWER.

In cold weather when the water and gas lines freeze—electric driven equipment holds up normal production much better than the older method.

Notice the names of our branch Commercial Department officers. Without obligation, you are urged to talk things over with our nearest representative.

Commercial Department:
Oklahoma City
O. A. Jennings, Mgr.

Oklahoma City Office - F. P. Hays
Ardmore Office - - - J. G. Cronin
Muskogee Office - - W. H. Steuve
Sapulpa Office - - - James Tussey
Enid Office - - - V. H. Kershner

OKLAHOMA GAS AND ELECTRIC COMPANY

J. F. Owens, Vice President and General Manager

Courteous, Personal Attention to Every Customer

One of a series of advertisements showing what ELECTRIC POWER has done.

Flush Joint Drill Pipe and Casing Equipment

Flush Joint Drill Pipe and Casing Equipment properly used is positive insurance against blow-outs and accompanying hazards. Its use also permits the drilling of many heaving and caving formations not possible to penetrate by any other system.

Sheldon - Burden Flush-Joint Tool Joint and Drill Pipe.

Drilling at 6300 feet. Hydraulic at top of stroke, drive head having been set up, with ratchet wrenches, ready to feed down. Weight of pipe is released from traveling blocks and taken on the hydraulic. By means of control valve, which can be set by driller, an absolutely uniform feed is obtained, while the weight on the bit is shown by pressure gauge.

HYDRAULIC Feed Rotaries and accessories make possible the drilling of straight holes in the most difficult formations. They handle any type bit from fish-tail to diamonds.

The Sheldon-Burden Drilling Company is the original organization which developed flush joint equipment and hydraulic feed rotaries for strictly oil and gas well drilling. Sheldon-Burden Type Equipment has been thoroughly proven under the most severe field conditions. Have you received your copy of our booklet describing Sheldon-Burden System of Rotary Drilling? Write or call for it at our booth.

Sheldon - Burden Back Pressure Valve.

Method of mounting Hydraulic Feed Mechanism.

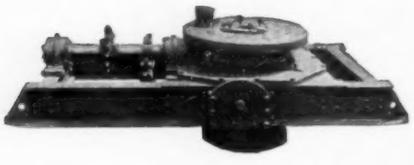


Table without Hydraulic Feed Mechanism ready to use regular kelly.

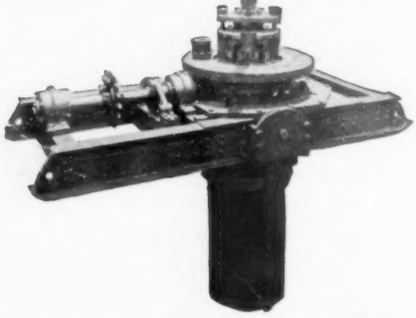
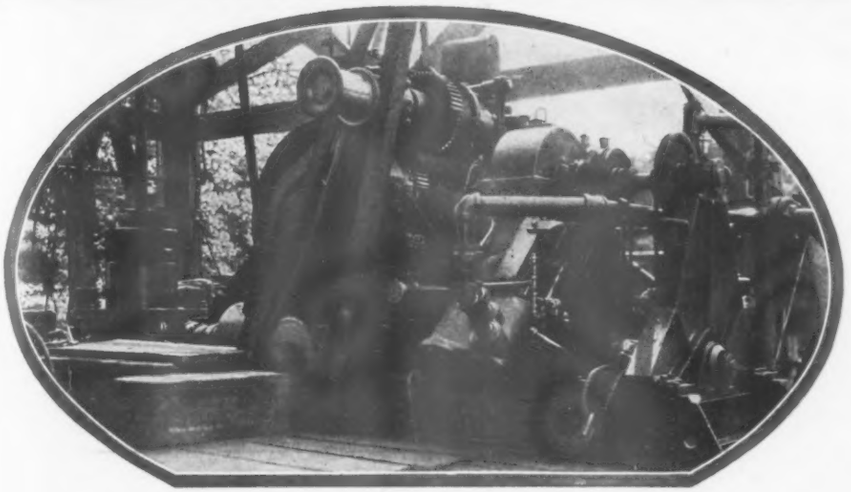
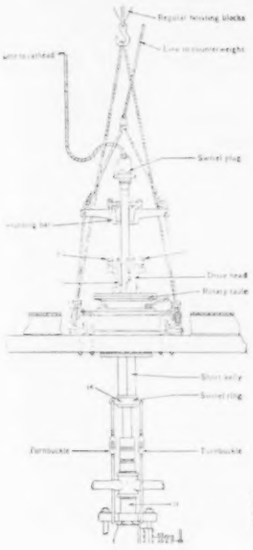


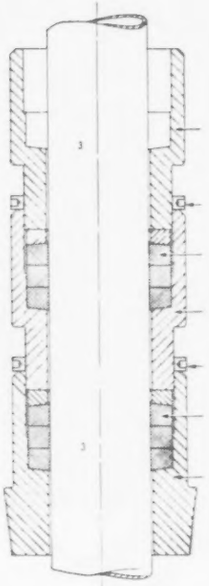
Table with Hydraulic Feed Mechanism and Flush Joint Pipe Drive Head. Kelly may be used with Hydraulic.



Type "C" Rotary Drill. Good for at least 5000-foot production drilling and coring to much greater depths. Weight complete with engine approximately 13 tons. Engine, Draw-Works and Rotary Table mounted on substantial steel base. Whole machine can be transported as one unit or as separate units. Can be furnished with electric motor, gasoline or Diesel engines, or Sheldon-Burden Type, 2-Cylinder, 90-degree high-speed, throttle reversing steam engine (either 8-in.x8-in. or 10in.x10-in.



Type "C" Rotary Table may be used with any type Draw-Works and Engine for drilling and coring to any depth. It is an exceptionally rugged rotary table which will do anything the usual rotary can accomplish and in addition it is always ready to accommodate the Sheldon-Burden Hydraulic Feed Mechanism.



At left — Sheldon-Burden Snubbing Equipment applied with short kelly in place of hydraulic.

Sheldon-Burden Double-Deck Stuffing Box. Additional units can be added if required.

Sheldon-Burden Type "D" Rotary Drill weighs approximately six (6) tons with 65-hp. Gasoline Motor. This machine is capable of production drilling to at least 2500 feet. One of these machines recently drilled several wells to over 4000 feet, finishing up with 6-inch bit. It is a portable unit with Engine, Draw-Works and Rotary Table mounted on one base. Furnished with either a regular 16-in. Production Table or 11-in. Sheldon-Burden Type Hydraulic Feed Rotary Table. Sheldon-Burden Type Planetary Gear Clutch on drum provides a quick and easy control and eliminates necessity of reverse gear. This machine is particularly adaptable to coring, wildcatting, and shallow production work. It is furnished with either gasoline, Diesel, steam or electric motor drives.

SHELDON
MACHINERY CORPORATION

15 Park Row New York

Branch Office, 718 Second National Bank Building, Houston Texas

Distributors—Oil Well Supply Co.—Lucey Products Corp'n.

district superintendent; A. D. Stoddard, chief engineer; Jay Taylor, district superintendent; C. P. Parsons, field engineer.

HAPPY BELTING CO.
Tulsa, Oklahoma

Booths Nos. 72-73-74 and 75 Oklahoma Building

Exhibit: Happy Vertical Belt Tightener for Beam Wells; Happy Automatic Band Wheel Power Idler; Happy Innerstitched Pump Belts; Type No. 22 and 23 U. G. Automatic Belt Contractors; Happy Perfect Grip Belt Dressing.

Representatives: P. E. Mahaffey, A. F. Nixon, R. C. Lindley, A. M. Butcher, W. H. Gouy; Leo C. King, T. L. Fuller.

HAYNES-STELLITE COMPANY
Kokomo, Indiana

Booths Nos. 16 and 17 Texas Building

Exhibit: Haynes Stellite Hardfacing material; Haystellite Hard setting material, diamond substitute; Hascrom used for "tying in" Haystellite.

Representatives: E. E. Levan, chief engineer, Kokomo, Indiana; W. S. Tromley, district sales manager, Tulsa; C. W. Metzger, district sales manager, Houston.

HAYS CORPORATION
Michigan City, Indiana

Booths Nos. 8 and 9 Scientific and Technical Building
(See Refinery Supply Company).

HAZARD WIRE ROPE CO.
Wilkes-Barre, Pennsylvania

Booth No. 28 Texas Building

Exhibit: Drilling Lines and all other types of Wire Rope used in the oil fields, including our special non-corrosive drilling line which has been so successful in fields containing sulphur and other corrosive materials, samples showing button cross-sections of rope constructions, etc.

Representatives: L. W. Bevan, general manager, home office, Wilkes Barre, Pennsylvania; H. Macmillan, sales manager, home office, Wilkes-Barre, Pennsylvania; H. Trautman, service engineer, Tulsa, Oklahoma; W. W. Runkle, service engineer, Fort Worth, Texas; Paul D. Steele, Rocky Mountain representative, Denver, Colorado; Thos. A. Keefe, district manager, Pittsburgh, Pennsylvania.

HEAT TRANSFER PRODUCTS, INC.
New York, N. Y.

Booths Nos. 94 and 95 Oklahoma Building
(See Jackson Engineering Company).

C. M. HEETER, SONS & CO., INC.
Butler, Pennsylvania

Booth 10′x20′ Open Air.

Exhibit: "Heeters" Improved Patented Packers; Swabs; Corrugated Friction Sockets; Wire Line Pumping Outfits and Sand Pumps and other oil well supplies.

Representatives: Colonel C. Heeter, president; E. F. Rankin, sales representative.

THE HERCULES MOTORS CORPORATION
Canton, Ohio

Booths Nos. 59, 60, 61 and 62 Oklahoma Building

Exhibit: "TXO" Oil Field Power Unit, (partially enclosed) feature of exhibit; "OOC" four cylinder—"YXC" six cylinder Power Units; "OX" Engine replacement for Fordson Tractors; "OX" Power Unit with Clutch power takeoff assembly; "G" Power Unit with reduction gears; "TXO" Power Unit with reduction gears; "OX" "YY" and "WX" Series models; "TX" Series Engine with foot type bellhousing—various engine parts, complete display.

Representatives: Chas. Balough, president J. C. Keplinger, director of sales; D. W. Latta, sales manager; R. J. Scott, Mid-Continent sales representative.

HIGHLAND CAB COMPANY
Cincinnati, Ohio

Booth 30x60-15x40′ Lot C and Outside.
(See Leland Equipment Company)

HIGHWAY TRAILER COMPANY
Tulsa, Oklahoma

Booth 51′x30′ Lot K

HILL, HUBBELL & COMPANY, DIVISION, GENERAL PAINT CORPORATION
Tulsa, Oklahoma

Booths Nos. 38 and 39 Texas Building

Exhibit: Mill Coated and Wrapped Pipe; Biturine Pipe Line Protective Coatings; Bitulumin Aluminum Paint; L & S Portland Cement Paint; Oil & Water Proof Concrete Floor Enamel.

Representatives: D. M. Boylan, district manager; Edgar S. Browning, manager Eastern Division; D. W. Boylan, president, Hill, Hubbell & Co.; W. D. Teubner, assistant to district manager; Geo. W. Nichols, salesman; Ray Gunn, salesman; J. F. Hennessey, salesman; R. B. Cannon; George Howard, salesman; H. P. Hilliard, manager Paint sales; Ainslie Perrault, salesman.

HILLS-McCANNA COMPANY
Chicago, Illinois

Booth No. 98 Texas Building

Exhibit: Young Tank Car Bottom Outlet Valves; Chemical Proportioning Pumps; Force Feed Lubricators, motor driven.

Representatives: A. H. Noyes, president; F. R. Grassle, secretary; Ed. Soph, district representative.

HINDERLITER TOOL COMPANY
Tulsa, Oklahoma

Booths Nos. 22 and 23 Texas Building

HOPKINS EQUIPMENT CORPORATION
Tulsa, Oklahoma

Booth Lot H 20′x30′

Exhibit: Braden's Big Bertha Heavy Duty Oil Field Hoist; Braden's Horizontal Truck Winch, all sizes; Reedy Trailers.

Representatives: L. V. Hopkins, Q. P. Shreck, T. J. Schuetz, Walter Shreck, Jack Booth, B. S. Scott.

THE CHARLES N. HOUGH MFG. COMPANY
Franklin, Pennsylvania

Booth No. 84 Texas Building

Exhibit: The Charles N. Hough Mfg. Company of Franklin, Pa., manufacturers of Pumping Specialties, will show most of their product in Booth No. 84, in the Texas Building, at the Annual International Petroleum Exposition. Among other items which will be shown, will be the well known and popular Hough Brands of Balls and Seats, known to the trade as "STEELEX", "BRONZEX", "REPELEX" and "COMBINEX"; Working Barrel Valves of various types, Seamless Steel Working Barrels and different types of Liner Working Barrels, including the well known Huf-Duo Pump, Lewis Plunger Liner. There will also be shown the Huf-Extension Lower Valve, "PROTEX" Upper Valve and Excelex Sucker Rod Socket. Much interest in the HOUGH Exhibit, will be centered in the brand new patented item known as the HUF-CARLBERG LINER WORKING BARREL. The principal object of this unit is to provide the Oil Industry with a Working Barrel in which packing is used and so designed that the packing can be expanded while the Working Barrel is in operation, and without moving the Valve out of the stroke where it has been working. The Huf-Carlberg Liner Working Barrel is installed complete with Sucker Rods and sets on top of the old Working Barrel or a Special Seating Nipple can be used, if desired.

Representatives: C. O. Shumaker, Tulsa, Oklahoma; C. N. Hough, Franklin, Pennsylvania; O. J. Thompson, Franklin, Pennsylvania.

HOUSTON ENGINEERING COMPANY
Houston, Texas

Booth 60′x70′ Open Air.
(See W-K-M Company)

HOWELL VALVE WORKS
Kansas City, Missouri

Booth No. 35 Oklahoma Building

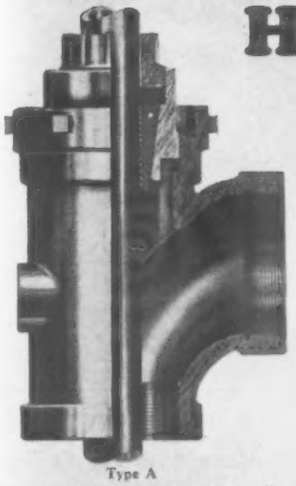
Exhibit: As usual we will have on display our regular line of Lease tank equipment consisting of Howell 4-in-1 valves of the Gastight Type; Howell 3-in-1 Valves of the Heavy Duty Type; Howell Combination Flowhead Valves

HERCULES TOOLS

USED IN THE WORLD'S OIL FIELDS

Speeding up Efficiency
Insuring Greater Safety

because of their simplicity, quality and because of the *absolute protection* they afford the operator. Hercules Tools are made of the best materials and workmanship obtainable, and are designed to work with other equipment with which they are used.

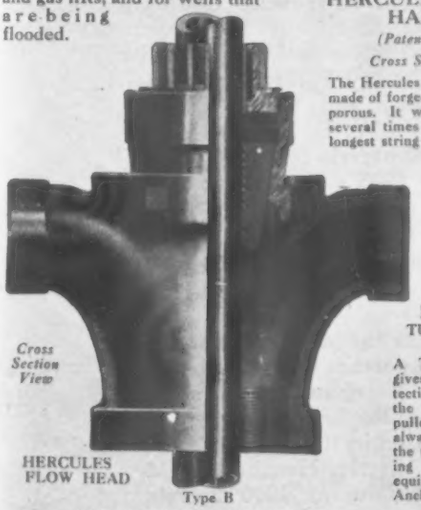


Type A

HERCULES FLOW HEAD

(Patent Pending)

Especially designed for high pressure flowing wells or air and gas lifts, and for wells that are being flooded.



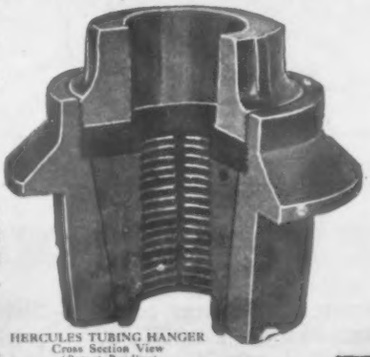
Cross Section View

HERCULES FLOW HEAD

Type B

HERCULES TUBING SPIDER *(Patented)*

The Hercules Tubing Spider, the simplest, safest and most positive tubing spider, is designed for running and pulling the tubing. Regular or upset collars pass through slips without interference.



HERCULES TUBING HANGER
Cross Section View
(Patent Pending)

HERCULES TUBING HANGER

(Patent Pending)

Cross Section View

The Hercules Tubing Hanger is made of forged steel and is nonporous. It will safely support several times the weight of the longest string of tubing and will hold any pressure used for either air or gas lift.

HERCULES TUBING ANCHOR

(Patented)

A Tubing Anchor that gives positive tubing protection while tubing is in the well or when being pulled from the well. Can always be controlled at the top of the well. Tubing cannot drop when equipped with a Hercules Anchor.

HERCULES CASING HEAD

The Hercules Casing Head is equipped with slips to support the inside string of casing. It is easy to install, does away with clamps, spiders, etc., and is made of electric cast steel, and of forged steel for high pressure wells. Made to fit either regular or A. P. I. casing.

Wire, Write or Phone for Catalog No. 1
For Sale By All Leading Supply Houses

(Patented)

HERCULES TUBING ROTATOR
Cross Section View

This Rotator lengthens the life of tubing by making it possible for one man to turn the tubing in the well, while the well is pumping, by changing the place of the rods wearing on the tubing.

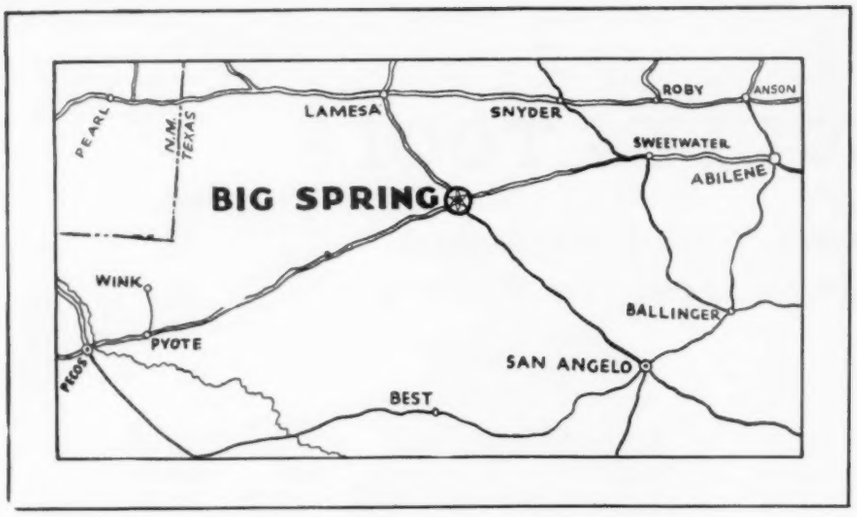
HERCULES CASING HEAD *(Cross Section View)*

Hercules Tool Company

Tulsa, Oklahoma

Phone 3-2358 P. O. Box 286 Palace Bldg.

New York Office Export Representative: Continental Well Supply Company, Inc., 74 Trinity Place, New York City, N. Y. *Cable Address:* "Contico" St. Louis and New York, All Standard Codes.



R. E. KIMSEY
Store Manager at Big Spring

- Big Spring, Texas -

The first commercial producer completed in this area was the Fred Hyer et al H. R. Clay No. 1, which opened the Clay-Hyer field on November 25, 1925, with an initial production of 50 barrels from 1542-1562 feet.

The Chalk field was opened on April 18, 1926, by Owen-Sloan et al with their Otis Chalk No. 1, which made 70 barrels from 1578-83 feet of 31.5 gravity oil.

A month later the O'Daniel field was opened by Choate-Henshaw et al's M. H. O'Daniel No. 1, which made 65 barrels from 2640--2705 feet.

December 27, 1926, Lockhart & Company brought in a 20 bbl. producer on the W. T. Scott farm, producing 30 gravity oil from 2740-2820 feet. This was the discovery well of the Lockhart-Scott field.

1926 production of Howard County was 34,000 barrels.

The Harding field was found on May 5th, 1927, when the J. B. Harding No. 1, making 140 barrels from 3173-88 feet was brought in.

On October 24, 1927, the deep pay in the Roberts field was discovered when the Magnolia Petroleum Company deepened their Dora Roberts No. 1, to 2956-2968 feet, resulting in a producer with 3300 barrels initial output.

1927 production of Howard County reachel 1,137,000 bbls.

On March 8, 1927, a pool was opened in Glasscock County by Marland Production Company and Texon Oil & Land Company's W. R. Settles No. 1, which made 200 barrels from 1235-1298 feet. The year 1928 saw but one new strike, but development in the deep producing horizon of the Roberts pool and in the other shallower areas sent production of the area for 1928 up to 4,803,000 barrels.

The lone strike made in 1928 proved to be a very important one, this being the test of the Henshaw Oil Corporation on the W. R. Settles farm, and west of production in the Roberts area. It opened the Settles-Henshaw field with an initial flow of 4200 barrels from 2208-32 feet.

1929 has witnessed the discovery of the World-McDowell field in Glasscock County, which was found by the World Oil Company's L. S. McDowell No. 1, which made 250 barrels from 2351-2398 feet on April 28th.

The Hyman field was found on June 17, 1929, by Magnolia Petroleum Company's Minna Hyman No. 1, having had an initial production of 20 barrels from 1308-17 feet.

FRICK
SUPPLY CO
Pittsburgh.....
COVERS THE FIELD WITH WELL MANAGED STORES

Is This Good Advertising?

IS it good advertising to devote full pages to historical matter on fields, embellished with nothing more than a map and a photograph of a man? Particularly when you are selling oil country equipment—not maps, nor histories, nor personalities.

And the answer is, folks like it. It cements old friendships and brings new ones.

Out at Big Spring, Texas, up at Muskegon, Michigan, over at Bradford, Pennsylvania, and at fields in between, you'll find Frick-Reid Stores manned by fellows whose friendly attitude is symbolized by the Corporation's use of paid space for featuring something aside from merchandise.

You'll find the merchandise, too—by America's very foremost manufacturers of oil country equipment, backed by intelligent service loyal to the industry as well as the home office.

Whether it's Big Spring or Wichita or Seminole or Marietta or some other field, give the Frick-Reid Store in your territory an opportunity to do something for you. And why not now—this October?

Axelson Machine Company

Sucker Rods, Pull Rods, Working Barrels, etc.

BEAUMONT IRON WORKS COMPANY
Dreadnaught Rotary Drilling and Pumping Equipment

FRICK-REID SERVICE RUBBER BELTING
Our Own Specifications

DONOVAN BOILER WORKS
Oil Country Boilers and Tanks

JONES & LAUGHLIN STEEL CORP.
Tubular Goods, Seamless and Lapwelded

NATIONAL TRANSIT PUMP & MACHINE CO.
Pumps and Pipe Line Equipment

WILLIAM POWELL COMPANY
Valves for the Oil Industry

J. P. RATIGAN
"Sure Grip" Line of Pumping Equipment

JOS. REID GAS ENGINE COMPANY
Two and Four Cycle Gas Engines, Pumping Powers, Refinery Equipment

JOHN A. ROEBLING'S SONS CO.
Wire Line and Welding Wire

ROSSENDALE-REDDAWAY COMPANY
"Camel Hair" and Stitched Canvas Belting

WALWORTH COMPANY
Fittings and Valves for all Branches of the Oil Industry

WHITLOCK CORDAGE COMPANY
Manila Cordage, including Drilling Cables, Bull Ropes, Cat Lines, etc.

REID

RPORATION

.....Tulsa

FROM THE ROCKY MOUNTAINS TO THE ATLANTIC COAST

and Howell Toggle Type Thief Hatch. All made of ALUMINUM, The Wonder Metal.

Representatives: H. H. Howell, Huron M. Allen, R. E. Rutledge.

HUGHES TOOL COMPANY
Houston, Texas

Booth 10′x30′ Open Air.

HYATT ROLLER BEARING CO.
Newark, New Jersey

Booths Nos. 78 and 79 Texas Building

Exhibit: Hyatt Roller Bearings and their extensive use in oil well equipment.

Representatives: C. L. Newby, J. M. Kelly, L. L. Hill, R. W. Fraser, H. C. Replogle, F. G. Webster.

ILLINOIS PIPE LINE COMPANY
Booth No. 18 Scientific & Technical Building

ILLINOIS STOKER COMPANY
Booth No. 55 Oklahoma Building

(See Vinson Canter Company)

IMPERIAL BRASS COMPANY
Chicago, Illinois

Booths Nos. 93 and 94 Texas Building

(See Welders Supply Company).

INDEPENDENT OIL & GAS COMPANY
Tulsa, Oklahoma

Booth 20′x20′ Open Air.

INDIANA RUBBER & INSULATED WIRE
Booth No. 17 Arcade

(See Electric Supply Company).

INDIANA TRUCKS, INC.
Tulsa, Oklahoma

Booth 15′x30′ Lot G.

Exhibit: Trailer Exhibit—This unit complete with a model 300T Indiana Tractor, Fruehof drop end trailer, and Davis Tank complete with attachments.

Representatives: Fred J. Warner, branch manager; W. D. Coleman, factory representative of National Accounts; J. D. Firestone, National Account representative of the Tulsa branch.

INDUSTRIAL BROWNHOIST CORPORATION
Cleveland, Ohio

Booth Block G. Outside Space.

Exhibit: Pony Ditcher.

Representatives: C. T. Topping, G. F. Climo, Jr.

INGERSOLL-RAND, INC.
Tulsa, Oklahoma

Block E

Exhibit: 1—180 hp Type XG Horizontal Direct Connected Gas Engine Driven Compressor Unit; 1—90 hp Type XOG Vertical Direct Connected Gas Engine Driven Compressor Unit; 1—DG-4 Direct Connected Gasoline or Gas Engine Driven Air Starting Unit.

Representatives: T. L. Clarke, manager, Tulsa office; R. G. Watt, Tulsa office; P. C. Clark, Tulsa office; W. M. Gebo, Tulsa office; F. A. Brown, Tulsa office; D. R. Lowry, assistant general sales manager, Dallas office; J. D. Cudney, manager Oil & Gas Eng. sales, Dallas office; Frank Lee, Dallas office; V. O. Kelly, Dallas office; D. A. Ruxton, Dallas office; R. R. Lewis, Dallas office; F. J. Wetzel, manager, Houston office; J. R. O'Brien, manager St. Louis; A. F. Englehardt, John Rogers and Harry M. Fisher.

INSLEY MANUFACTURING COMPANY
Indianapolis, Indiana

Booth 30x60-15x40′ Lot C & Outside.

(See Leland Equipment Company).

INTERNATIONAL COMPOSITIONS COMPANY
New York, N. Y.

Booth No. 59 Texas Building

(See National Tank Seal Company).

THE INTERNATIONAL DERRICK & EQUIPMENT COMPANY
Colombus, Ohio

Booth 30′x90′ Open Air.

Exhibit: We will show a completely equipped Ideco Drilling outfit, including derrick, base, accessories, draw work, rotary, traveling block, and crown block in addition to other items of Ideco equipment, including the small standard building.

Representatives: H. M. Runkle, president; R. R. Blo[illegible], vice-president and general manager; C. C. Runkle, secretary and sales manager; F. W. Mohler, Mid-Continent manager; C. M. Powell, district manager, Tulsa, Okla; L. L. Powell, district manager, Houston, Texas; Robert Dunlap, district manager, Shreveport, La.; M. C. Morris, district manager; B. Boykin, Jr., manager Boykin division; S. B. Creamer, chief engineer; J. H. Hamilton, advertising manager; Walter Hazel, sales promotion department; L. R. Taft, sales promotion department.

INTERNATIONAL FILTER CO.
Chicago, Illinois

Booth No. 49 Oklahoma Building

Exhibit: International Gas Purifiers—with an operating model—together with a photographic display of International Oil Field Water Purification Equipment Installations.

Representatives: L. K. Cecil, Oklahoma representative; I. D. Matter, Texas representative.

INTERNATIONAL HARVESTER CO. OF AMERICA
Tulsa, Oklahoma

Booths Nos. 52, 53 and 54 Texas Building

Exhibit: Heavy Duty High Speed Trucks, also International Tractors will be shown in connection with following Winches—W-K-M Shaffer Spec. Co., Muskogee Iron Wks.; Branden Co..; White P. Williamson Sampson Winches, Resistcor Co.

Representatives: R. E. Butler sales manager, Chicago; H. P. Thieman, tractor department, Chicago; W. F. McAfee, Motor Trucks, Chicago; J. V. Coy, engineering department, Chicago; R. W. Elliott, branch manager, Tulsa.

INTERNATIONAL SUPPLY COMPANY
Tulsa, Oklahoma

Booths Nos. 40 and 41 Texas Building

(See Oklahoma Iron Works).

JACKSON ENGINEERING CORPORATION
Tulsa, Oklahoma

Booths Nos. 94 and 95 Oklahoma Building

Exhibit:. Designs of Gasoline Absorption Plants and Fractionating Units and Fluor Construction Company products — Fluor Redwood Cooling Towers — and products of Heat Transfer Products, Inc.,—heat transfer apparatus for the petroleum industry.

JARECKI MANUFACTURING COMPANY
Tulsa, Oklahoma

Booths Nos. 56, 57 and 58 Texas Building

(See Union Wire Pope Corporation).

JENSEN BROS. MFG. CO.
Coffeyville, Kansas

Booth 10′x20′ Outside Space. Lot F

Exhibit: Jensen Straight Lift Electric Pumping Jack; Jensen Straight Lift Gas Engine Pumping Jack; Jensen Straight Life Titan Jack.

Representatives: Wm. G. Jensen, K. R. Jensen, E. H. Jensen, Sam Cohoe, Sam Bliss.

THE S. M. JONES CO.
Tulsa, Oklahoma

Booth No. 18 Oklahoma Building

Exhibit: Jones H. M. API Box and Pin Sucker Rods.

Representatives: P. C. Jones, Toledo, Ohio; D. R. Dale, Toledo, Ohio; W. H. Jeffey, Toledo, Ohio; A. L. Meek, Tulsa, Oklahoma; C. A. McClure, Tulsa, Oklahoma.

JONES & LAUGHLIN STEEL CORPORATION
Pittsburgh, Pennsylvania

Booths Nos. 24, 25, 26, 27 and 28 Arcade

Exhibit: Jones & Laughlin A.P.I. Seamless Casing, Tubing and Drill Pipe; Woodlawn Special Seamless and Lapweld Casing; J. & L. Seamless and Welded Line Pipe.

Representatives: S. E. Hackett, vice-president in charge of finance; F. D. Grunder, manager of tube sales; A. E. Crockett, head of bureau of instruction; H. L. Miller, district sales manager, St. Louis; C. E. Swindler, St. Louis office; H. P. Quinn, Tulsa representative; A. P. Holloway, Fort Worth representative.

KELLOGG SWITCHBOARD & SUPPLY COMPANY
Chicago, Illinois

Booth No. 7 Scientific Building

Exhibit: Magneto Wall Switchboards; Magneto Tele-

BETTER WELDS 33⅓% to 50% LESS

Stronger welds . . . Welds with exceptionally high resistance to corrosion . . . welds that can be made without overheating and consequent weakening of the base metals.

Convincing evidence for those who want it—

Let Us Prove QUASI-ARC Superiority in Your Own Shop On Your Own Type of Work

For sixteen years, in every part of the world, on every class of work from a simple repair job to such particular work as fabricating the world's first rivetless ship, Quasi-Arc Electrodes have been making their record and demonstrating their superiority. Let us SHOW YOU in your own shop.

The records are open to you and so convincing you will be glad to standardize on Quasi-Arc because the advantages are too manifest and important to forego. Proof awaits—ready when you are.

QUASI-ARC INCORPORATED

11 West 42nd Street, New York, N. Y.

CHICAGO CLEVELAND DALLAS LOS ANGELES

Those are some of the advantages you gain when you start using—

Quasi-Arc Electrodes

They are scientificially designed to produce welds that stand up under severe service.

They are supplied in standard 18-inch lengths with cores of varying diameters, and composition suited for the work to be done, as follows:

Mild Steel Electrodes (Colored Blue)—Suitable for general welding of iron or mild steel, structural steel and plate construction, wheel tires, filling steel castings, etc.

Overhead Electrodes (Colored White)—Suitable for any overhead or vertical welding.

Uranium Electrodes (Colored Brown Ends)—Suitable for boiler welding and other work subject to stresses at high temperatures. Such welded joints also show a remarkable high resistance to shock, fatigue and vibratory stresses. Give satisfactory results in joining stainless steel with mild steel, and produce joints of high efficiency in welding high-carbon steel.

Electrodes for Cast Iron (Colored Yellow)—Suitable for the repair of iron castings, leaving a soft machinable deposit.

Carbon Steel Electrodes (Colored Red)—Suitable for reinforcing worn parts of machinery, building up teeth of steel gear wheels, reinforcing steel wobbler ends for rolling mills, trolley rail treads, etc.

Manganese Steel Electrodes (Colored Black Ends)—Suitable for reinforcing or building up manganese steel crusher jaws, dredger bucket lips, trolley crossings, etc.

Vanadium Steel Electrodes (Colored Dark Gray Ends)—Suitable for building up gear wheels, crankshafts, axles, etc., which may require case hardening.

Stainless Steel Electrodes (Colored Blue Ends)—Suitable for welding stainless steel and for reinforcing other steel with stainless steel.

ALCO TOOLS

SIMPLIFIED CONSTRUCTION

In oil-producing centers of the United States as well as in foreign fields—where the digging is hardest, where tools and equipment must stand up under severest conditions—there you will find ALCO Tools and Equipment making records every day. Operators and drilling contractors depend on their efficiency to save time and to cut drilling costs.

From the day when the first ALCO Oil Tool was introduced, two cardinal principles of design and construction have been rigidly followed: namely, that every tool be of the simplest possible design; and that every part be made of the highest grade materials obtainable.

4-WAY HARD FORMATION BITS AND SIMPLIFIED REAMERS

Two types of bits—Solid, and Demountable Head—meet all requirements for drilling in any formation. Both are especially designed for fast digging of straight, full-gauge hole. Special shanks permit running Alco Simplified Reamers directly above Alco Bits (as illustrated above) and also at as many points in the drilling string as desired.

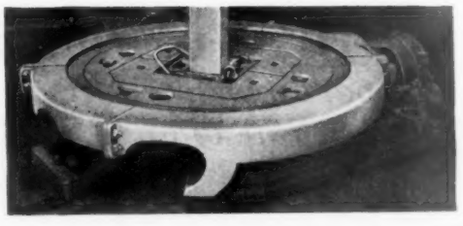
KAMMERDINER ROTARY JAR

The most efficient and dependable tool for breaking loose the hold of any fish. When coring, under-reaming or drilling in hard rock, running this jar in the drilling string will save many fishing jobs.

Our new catalog, listing all Alco Tools, Equipment and Accessories, is now being distributed. Complete information is given concerning every product, its uses described, and where necessary, the method of operation is explained. If you have not yet received your copy, we shall be glad to send you one—or more if you can use them.

ROTARY DRILL PIPE FLOAT VALVE

Relieves the strain on draw works, crown blocks, traveling blocks and drilling lines when drilling deep wells. Opening through the valve practically the same as that through the tool joint. No restriction of circulation, no clogging. If desired, fishing tools or shots will pass through easily without injuring the valve.



ROTARY TABLE GUARD

A practical device now widely used by a number of the major oil companies, which constantly proves its value as a safety measure. Easily and quickly installed or dismounted. Made in all sizes for all models of rotary tables.

and Equipment
HIGHEST EFFICIENCY

For example, Alco 4-Way Hard Formation Bits and Alco Reamers are both one-piece tools that can be used separately or mounted together on one shank. This simple combination, without a movable part, has made drilling records that could be proudly cited for the most complicated bit ever run.

In Alco Coring Equipment, the Alco Releasing Rotary Spear and the Alco Drill Pipe Float Valve, is found the same simplified design. Efficient but not complicated.

Alco Tools are made of highest grade nickel steel, heat-treated in our electrically controlled furnaces to insure uniformity, strength and maximum wearing qualities. All cutting tools are faced with Stellite and sub set with high quality diamond substitute.

Every Alco product is quality all the way through, built to speed up drilling, eliminate costly delays, and in many ways reduce drilling costs. Send for our complete catalog with full information.

CORING EQUIPMENT

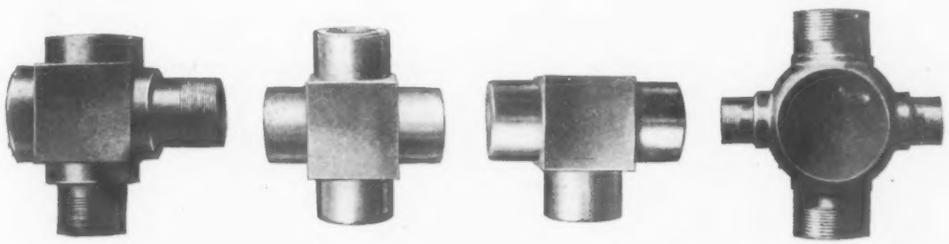
Alco Coring Equipment is made in sizes to drill holes from 3-7/8" to 19" in diameter and to cut cores from 1¼" to 5" in diameter. Cutter Heads are designed on the same principle as Alco 4-Way Hard Formation Drilling Bits, and are made in two types with different circulation arrangements. In addition to the regular core catcher shown above, a special catcher is furnished for retaining cores of soft formations.

RELEASING ROTARY SPEAR

An efficient and well-designed tool, with only four moving parts. Pulls the casing if it can be pulled. Made of the best alloy steel, reliable and positive in action, never hangs up on bad collars or sections of jagged casing.

ALCO OIL TOOL CO., Inc.

P. O. BOX "A", COMPTON, CALIF.
Taft—Ventura—Kettleman Hills
6106 Texas Ave., Houston, Texas



ALCO 10,000-POUND TEST FORGED STEEL FITTINGS

Manufactured to Alco standards of quality, which insure accuracy, unexcelled materials and workmanship, and a safety factor of strength great enough to withstand any pressure to which they may be subjected. Bull Plugs, Swage Nipples, Hydraulic Fittings and Nipples of highest quality; Crosses and Tees in all sizes, male or female. Combination Cages, which, in connection with Alco Flow Beans, provide the most economical method of controlling high pressure flowing wells.

phones; Oil Field Telephones; Railroad Telephones; Testing Equipment; Phantom Coils; Insulating Transformer; Outside Line Construction Material; New Type Telephone Cord.

Representatives: Minor Corman in charge; C. G. Gardner, assisting.

THE KEMPER-THOMAS COMPANY
Cincinnati, Ohio

Booth No. 8 Texas Building

Exhibit: Advertising Specialties including Art and Business Calendars; Leather and Cloth Goods used for advertising purposes; Special Display of the Barker Patented Weatherproof Sign and All-Weather, outdoor Sign manufactured and sold in the United States exclusively by the Kemper-Thomas Company.

Representatives: C. H. Weier, director of Barker Sign Sales, Cincinnati, Ohio; O. M. West, Western Division sales manager, St. Louis, Missouri; Geo. Koester, local representative, Tulsa, Oklahoma.

KENNEDY-PLUMB CORPORATION
St. Louis, Missouri

Booth No. 84 Oklahoma Building

KENNETH BLAKELY
Oklahoma City, Oklahoma

Booth 10′x20′ Open Air

KENTUCKY GEOLOGICAL SURVEY
Booth No. 18 Sciertific & Technical Building

KEROTEST MANUFACTURING COMPANY
Pittsburgh, Pennsylvania

Booth No. 67 Texas Building

Exhibit: Drilling Valves, Flow Line Valves and Christmas Tree Fittings of 6,000 lb. test will be shown, along with an entirely new design of Cast Steel High Pressure Throttle Valve for use on steam engines for rotary or cable tool drilling. Also new type of High Pressure Oil Saver for drilling in or finishing wells with cable tools.

Representatives: W. G. Swaney, general manager; Shep F. Miers, Mid-Continent representative.

KEY BOILER EQUIPMENT CO.
East St. Louis, Illinois

Booth 15′x30′ Open Air.

KEYSTONE DRILLER CO.
Joplin, Missouri

Booth 30′x30′ Outside Open Air. Lot M

Exhibit: Oil Field Spudder; Oil Field Tools for Spudder; Cable Tool Core Drill.

Representatives: Frank Oliver, E. E. Blosser, H. C. Hutchison, Clarence Johnson, F. B. Ransom.

THE KIRK-MORROW IRON WORKS CO.
Iola, Kansas

Outside Space

Representatives: D. C. Morrow, Tulsa; F. J. Bradford, Tulsa; V. H. Van Horn, Tulsa; H. M. Rosevear, Tulsa; W. H. Dwyer, Dallas; L. B. Chevalier, Iola; R. H. Guthrie, Seminole; W. E. Pearce, Maud; R. B. Chapin, Wichita; C. E. Jones, Pampa; H. B. Bullington, Midland.

KLIPFEL MANUFACTURING COMPANY
Booth 20′x20′ Lot B

(See Federal Steam Specialties Company).

KOEHRING & COMPANY
Milwaukee, Wisconsin

Booth 30x60-15x40′ Lot C & Outside.

(See Leland Equipment Company).

KRAFFT-RAMSAY MFG. COMPANY
Tulsa, Oklahoma

Booth 8′x10′ Open Air.

Exhibit: Krafft-Ramsay Mfg. Company and Rooney-Krafft Company Products. Also Allpax Company products.

K-W IGNITION CORPORATION
Booth 20′x30′ Lot F

(See Magneto Ignition Corporation).

LAKIN MANUFACTURING COMPANY
Booth 20′x20′ Lot B.

(See Federal Steam Specialties Company).

LAND SUPPLY COMPANY
Oklahoma City, Oklahoma

Open Air.

(See Clark Bros. Company).

LARKIN PACKER COMPANY
Tulsa, Oklahoma

Booth No. 109 Texas Building

Exhibit: Bull Plugs; Swage Nipples; Texas Shoes; Spider and Slips; Rotary Hole Equipment Cast Iron type; Rotary Hole Equipment Cement type.

Representatives: J. J. Larkin, J. E. Kilzer, C. F. Dougherty, D. F. Fournier.

LEEDS & NORTHRUP COMPANY
Philadelphia, Pennsylvania

Booths Nos. 53 and 54 Scientific & Technical Building

Exhibit: L. & N. Three-Position, Balancing, Recording Controller With Anticipator; Temperature Recorders; Temperature Indicators; Valve Control Mechanism; Thermocouples.

Representatives: G. C. Graf, B. F. Koepke, H. Brewer.

LELAND EQUIPMENT COMPANY
Tulsa, Oklahoma

Block C Open Air.

Exhibit: Schramm, Inc., Portable Air Compressors, West Chester, Pennsylvania; Spencer Trailer Co., Trailers, Augusta, Kansas; T. L. Smith Co., Concrete Mixers, Milwaukee, Wisconsin; Koehring Company, Concrete Mixers, Milwaukee, Wisconsin; Silent Hoist & Winch Co., Winches, Brooklyn, New York; Muskogee Iron Works, Winches, Muskogee, Oklahoma; Blaw-Knox Company, Cranes, Indianapolis, Indiana; Staynew Filter Corporation, Air Filters, Rochester, New York; Highland Cab Company, Truck Cabs, Cincinnati, Ohio.

Representatives: H. C. Adelhelm, F. B. Carr, Jas. Code, C. L. Edwards, G. G. Henderson, H. R. Leland, J. F. Russell, W. C. Schneider, H L. Strong, Sam Froome, Fred Spencer, W. N. Keiser, Geo. Matthes, E. R. Curry.

LEIDECKER TOOL COMPANY
Booths Nos. 25 and 27 Texas Building

(See Bovaird Supply Company).

LESCHEN WIRE ROPE COMPANY
St. Louis, Missouri

Booths Nos. 82-129 Texas Building

Exhibit: Samples of the various Wire Lines manufactured for oil field purposes.

THE LINCOLN ELECTRIC COMPANY
Cleveland, Ohio

Outside Space, 30 x 35.

Exhibit: Lincoln "Stable-Arc" Welders of various sizes driven both by electric motor and gasoline engine; Lincoln "Stable-Arc" Welding Supplies of all kinds; Miniature Pipe Line and actual pipe line welding; "Smithweld" Oxy-Acetylene Equipment.

Representatives: The Lincoln Electric Co., represented by A. F. Davis, vice-president. The Welding Engineering Co., Bartlesville, Okla., represented by Harold C. Price, general manager and Ray Redding. Big Three Welding & Equipment Co., Fort Worth, Tulsa, Houston, representatives: C. K. Rickel, B. K. Smith, H. A. Webb, L. A. Adamson.

LINDE AIR PRODUCTS COMPANY
New York, N. Y.

Booths Nos. 18-19-20 Texas Building

LINK BELT COMPANY
Chicago, Illinois

Booth No. 27 Texas Building

Exhibit: Link Belt Rotary and Calf Wheel Drilling Chains.

Representatives: C. E. Markey, Indianapolis; J. Wilson, Los Angeles; E. G. Wendell, Dallas; G. Howson, Kansas City.

LORRAINE CORPORATION
Los Angeles, California

Booths Nos. 99-112 Texas Building

(See National Tank Company).

LUFKIN FOUNDRY & MACHINE COMPANY
Lufkin, Texas

Booth No. 112 Oklahoma Building

THE LUNKENHEIMER COMPANY
Cincinnati, Ohio

Booths Nos. 130-131 Oklahoma Building

Exhibit: Iron, Bronze and Steel Valves; Oil Cups; Grease

American Hammered Piston Rings

Individually cast, mechanically hammered to give lasting tension, particularly designed and adapted for Oil Field and other severe service.

Endorsed and used as Factory Equipment by

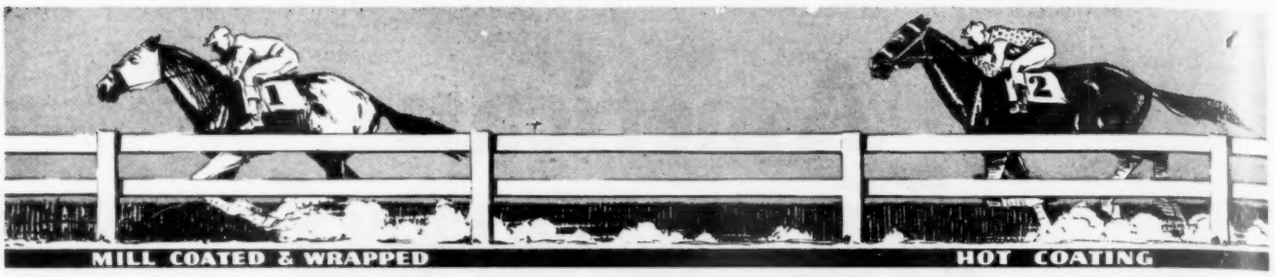
Ajax Iron Works - - - - - - - - Corry, Pa.
Bruce-Macbeth Eng. Co. - - - Cleveland, Ohio.
Bovaird & Seyfang Mfg. Co. - - Bradford, Pa.
Brandford Supply Co. - - - - - Bradford, Pa.
Cooper-Bessemer Corp. - Mount Vernon, Ohio
Chicago Pneumatic Tool Co. - New York, N. Y.
De La Vergne Machine Co. - Philadelphia, Pa.
Franklin Valveless Eng. Co. - - Franklin, Pa.
Ingersoll-Rand Co. - - - - - New York, N. Y.
McIntosh & Seymour Corp. - - Auburn, N. Y.
Munice Oil Engine Co. - - - - - Munice, Ind.
National Supply Co. - - - - Toledo, Ohio
Pennsylvania Pump & Compressor Co. Easton, Pa.
Power Mfg. Co. - - - - - - - Marion, Ohio
Jos. Reid Gas Eng. Co. - - - - Oil City, Pa.
Sullivan Machinery Co. - - Michigan City, Ind.
Titusville Iron Works - - - - Titusville, Pa.
Wilson Snyder Mfg. Co. - - - Pittsburgh, Pa.
Worthington Pump & Mach. Corp., New York, N. Y.

Look for the BALL POINT HAMMER MARKS inside the ring

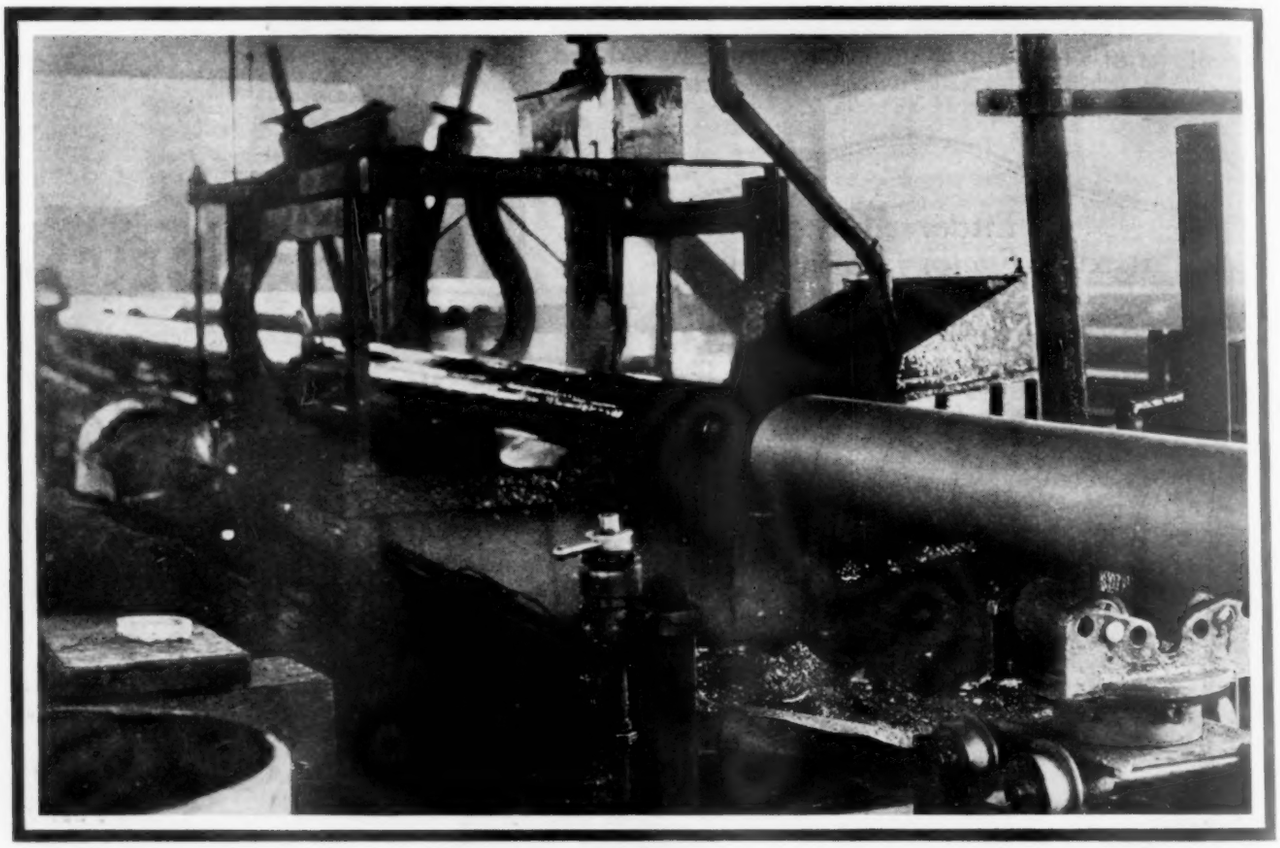
May be obtained from the above companies, or their selling agents, in standard sizes or oversizes.

Rings for any engine or compressor not listed above can be obtained direct from us.

The American Hammered Piston Ring Co. Baltimore, Md.



ONLY 1 YEAR

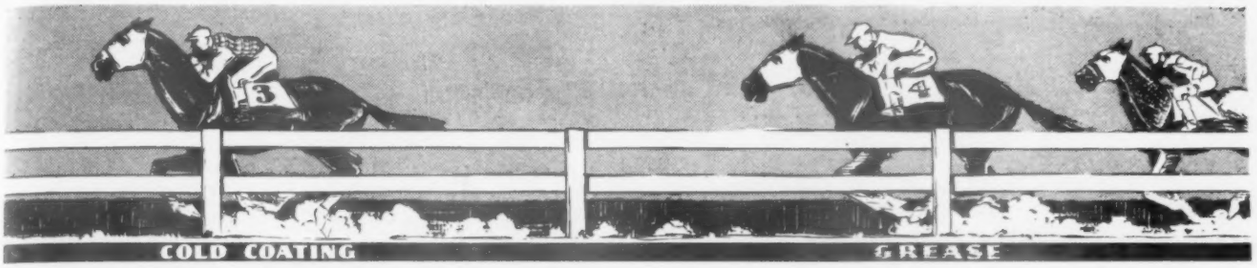


The photograph above shows the coating and wrapping machine at one of the largest pipe mills in America. Six plants operated by Hill, Hubbell & Company, throughout the country, at as many pipe mills, are applying coating and wrapping to many miles of pipe, under contract. The method of application is as follows: After being cleaned and primed under scientific control, the pipe is fed into the coating and wrapping machine in a continuous length, using temporary couplings. As the pipe is passed through the machine in a spiral motion it receives in succession two hot coats of enamel, a wrapper of felt, and a final wrapper of kraft paper. The kraft is applied for the purpose of furnishing a light surface which acts to deflect sunrays while the pipe is in transit to its destination. The contrasting light kraft surface and the dark felt underneath also quickly spot any damage that may have occurred to the wrapper in transit. Only careful and intelligent handling is required to prevent damage to the coating and wrapping, as our records covering hundreds of carloads of pipe transported in this manner have shown.

HILL, HUBBELL

Division
General Paint Corporation
Manufacturers of Highest Grade Oil Industry Paints and
Pipe Line Coatings

Offices: SAN FRANCISCO TULSA NEW YORK CHICAGO



OLD .. but already away out in front.

EXACTLY one year ago this month, (October, 1928) we announced a revolutionary advance in pipe protection — MILL COATED AND WRAPPED PIPE. In our announcement we said, Hill, Hubbell & Company, originators of nearly every improvement made during the past fifteen years in materials and methods of applying pipe coatings, take pride in announcing machine coated and wrapped pipe . . . . the revolutionary effects that machine coated and wrapped pipe will have upon the Industry are apparent because of the many advantages over present-day methods of application."

Today, (October, 1929) more than three thousand miles of pipe have been mill coated and wrapped by Hill, Hubbell & Company's mechanical application. It is a significant fact that the leading pipe line companies have specified mill coating and wrapping for the largest pipe line projects of the past twelve months. The foremost pipe line engineers of the country are unanimous in their opinion that the absolute temperature control of the coating and the precision made possible by mechanical application greatly prolong the life of pipe. It is universally agreed by experts that the proper application of the coating is the largest single factor in the success of any form of protection of buried pipe against corrosion and soil stress.

Booths 38-39
Texas Bldg.

We cordially invite your investigation of the facts concerning mill coated and wrapped pipe—facts that have led to its almost instantaneous adoption by the leaders in the Pipe Line Industry as the outstanding methods of pipe protection.

& COMPANY

General Offices: SAN FRANCISCO
Mid-Continent Factory: TULSA

LOS ANGELES HOUSTON PORTLAND SEATTLE SPOKANE

Cups; Lubricating Devices and other engineering specialties. The exhibit will feature the Lunkenheimer "Kingclip" Valve.

Representatives: Harry A. Burdorf, sales manager, Cincinnati, Ohio; Joseph Waldeck, representative, St. Louis, Missouri; Marshall N. Stickel, representative, Houston, Texas; Elmer R. Tieberman, representative, Wichita Falls, Texas.

THE McALEAR MFG. CO.
Chicago, Ill.

Booth No. 118 Texas Building

Exhibit: 1—No. 300 McAlear Casinghead Regulator. 1—No. 804 Liquid Level Controller, Ball Bearing Direct Acting Type. 1—No. 804 Pilot Operated BB Liquid Level Controller. 1—No. 685 Gasoline Trap. 1—No. 726 Ditto. 1—No. 298 Gas Pressure Red. Valve. 2—No. 528 Strainer Suction and Pressure. 1—No. 816 Water Feeder. 1—Boiler Governor. 1—Pilot Operated Back Press. Valve.

Representatives: Mr. James McAlear, President. Mr. W. P. Nevins, Secretary and Sales Manager. Mr. Wm. Ludvik, Chief Engineer. B. V. Emery, President B. V. Emery Co., Tulsa. W. D. Emery, Chief Engineer, B. V. Emery Co., Tulsa. Thos. Compbell, B. V. Emery Co., Tulsa.

MacCLATCHIE MANUFACTURING COMPANY
Compton, California

Booth No. 110 Oklahoma Building

Exhibit: New MacClatchie Geared Brake for Draw-works; new "Pipe-Tectos," rubber casing protectors; MacClatchie Flow Nipples (formerly Dailey) for which this company has just bought all rights; MacClatchie Rotary Under-reamer; MacClatchie Mud Pump Valve; MacClatchie Automatic Safety Cathead; MacClatchie Mud Pump Piston; MacClatchie Stop Cocks, with and without union ends; MacClatchie Quick Unions; MacClatchie Quick Change Cement Head; MacClatchie Pump Liner Puller; MacClatchie Valve Seat Puller.

Representatives: J. Warren MacClatchie, S. H. Atkinson, A. O. Nelson.

McEVERLAST, INC.
Los Angeles, California

Booth 36 and 37 Oklahoma Building

Exhibit: Protective Coatings for Tanks; Protective Coatings for Pipe Lines.

Representatives: C. Homer Spotts, Los Angeles, Calif.; D. T. Mason, Dallas, Texas; W. I. Lewis, Houston, Texas; H. B. Mayes, Houston, Texas; L. V. Schmitton, San Francisco, Calif.

J. H. McEVOY & COMPANY
Houston, Texas

Booth 10ft.x15ft. Lot "H"

MacWHYTE COMPANY
Kenosha, Wisconsin

Booth Nos. 102-103 Texas Building

Exhibit: A. Mac Whyte 1" 6x19 Drilling Cable; Wire Rope Sample Board and Literature on Wire Lines.

Representatives: Mr. E. E. Carter, Branch Manager, Tulsa Office; Mr. C. C. Lemon, Salesman, Tulsa Office; Mr. N. T. Miles, Adv. Mgr., Kenosha, Wisconsin; Mr. Wm. Russell, Chief Engineer, Kenosha, Wisconsin; Mr. Lee Caldwell, Texas Representative; Mr. Jessel S. Whyte, Vice-Pres. and Gen'l Mgr., Kenosha, Wisconsin.

MACHINE TOOL & SUPPLY COMPANY
Tulsa, Okla.

Open Air

(See Dresser & Gorton, Inc.)

MAGNETO IGNITION CORPORATION
Tulsa, Okla.

Lot F—Outside Space Magneto Building

Exhibit: All models of K-W Magnetos; Eisemann Magnetos; American Bosch Magnetos; Splidorf Magnetos, for Truck, Tractor and stationary Gas Engines; Scintilla Aircraft Magnetos; Spark Plugs (Stitt, Splitdorf, Mosler Spitfire, Rajah, Fyrac, Bosch and B-G Aviation Spark Plugs); Complete Electrical Test Bench for testing all electrical apparatus, Starters, Generators and Magnetos; full line of Packard Ignition Cable and other Ignition Specialties, such as Driving Gears for Magnetos used on gas engines, Magento Covers, etc; U. S. Electrical Co., Portable Electric Tools.

Representatives: Mr. R. E. Day, Mr. M. C. Elworthy.

MAGNOLIA GAS PRODUCTS
Houston, Texas

(See Modern Engineering Co.)

MANGUS CHEMICAL COMPANY
Garwood, New Jersey

Booth No. 19 Oklahoma Building

Exhibit: Display Jars containing samples of cleaning materials manufactured by Magnus Chemical Company oil industry, in crude and finished form. A series of Laboratory Experiments showing the emulsifying effect of various alkalies and soaps on grades of mineral oils used in the industry. Gate Valves and Oil Drums partially cleaned to show contrast for exhibition purposes.

Representatives: Mr. A. J. Ospring, Mid-Continent District Manager; Mr. A. B. Chadwell, Sales and Service Representative, Oklahoma City; Mr. Donald C. Stanley, Vice-Pres. and Sales Manager, Garwood, N. J.

MALONEY TANK MFG. CO.
Tulsa, Okla.

Booth 48 Oklahoma Building

Exhibit: Sectional view of 100 barrel Tank; Various Tank equipment—Valves, etc.

Representatives: J. S. Warren, W. H. Elliott, R. A. Maloney, J. C. Highfill.

MARION MACHINE, FOUNDRY & SUPPLY CO.
Tulsa, Okla.

Booth 91-92 Texas Building

Exhibit: Oil Well Machinery; Clay Working Machinery; High Grade Brass & Iron Castings; Boiler Room Specialties; Mill Supplies.

Representative: Mr. Ralph E. Evans.

MARQUETTE MANUFACTURING COMPANY
St. Paul, Minn.

(See Oildraulic Sales Corporation)

MARTIN-LOOMIS CORPORATION
Long Beach, California

Booth No. 68 Texas Building

Exhibit: The Martin-Loomis Automatic Recording Weight Indicator; The Martin-Loomis Pump Dynamometer; The Pull Rod Dynamometer; The Martin-Loomis Mud Pump Gauge; The Vernier Gauge; Temperature Bomb; Tension Indicator.

Representative: Mr. E. L. Decker in charge.

MARTIN & SCHWARTZ, INC.
Buffalo, N. Y.

Booth 10 x 30 ft. Open Air

MARVEL FISHING TOOL COMPANY
(See Baker Oil Tools, Inc.)

MASON REGULATOR COMPANY
(See The Moorlane Company)

MASSILLON, CLEVELAND, AKRON SIGN CO.
Massillon, Ohio.

Booth 10ft.x35ft. Open Air

THE MEDART CO.
St. Louis, Mo.

Booth No. 9 Texas Building

Exhibit: Medart Timken Equipped Oil Well Countershaft; Medart Timpken Equipped Rack and Pinion Belt Idler; Medart Timpken Equipped Friction Clutch Pulley; Medart Timpken Pillow Blocks and Hanger Bearings; Medart Hercules Heavy Duty Oil Field Pulley.

Representatives: W. R. Medart, W. G. Kessling.

MERCO NORDSTROM VALVE COMPANY
New Orleans

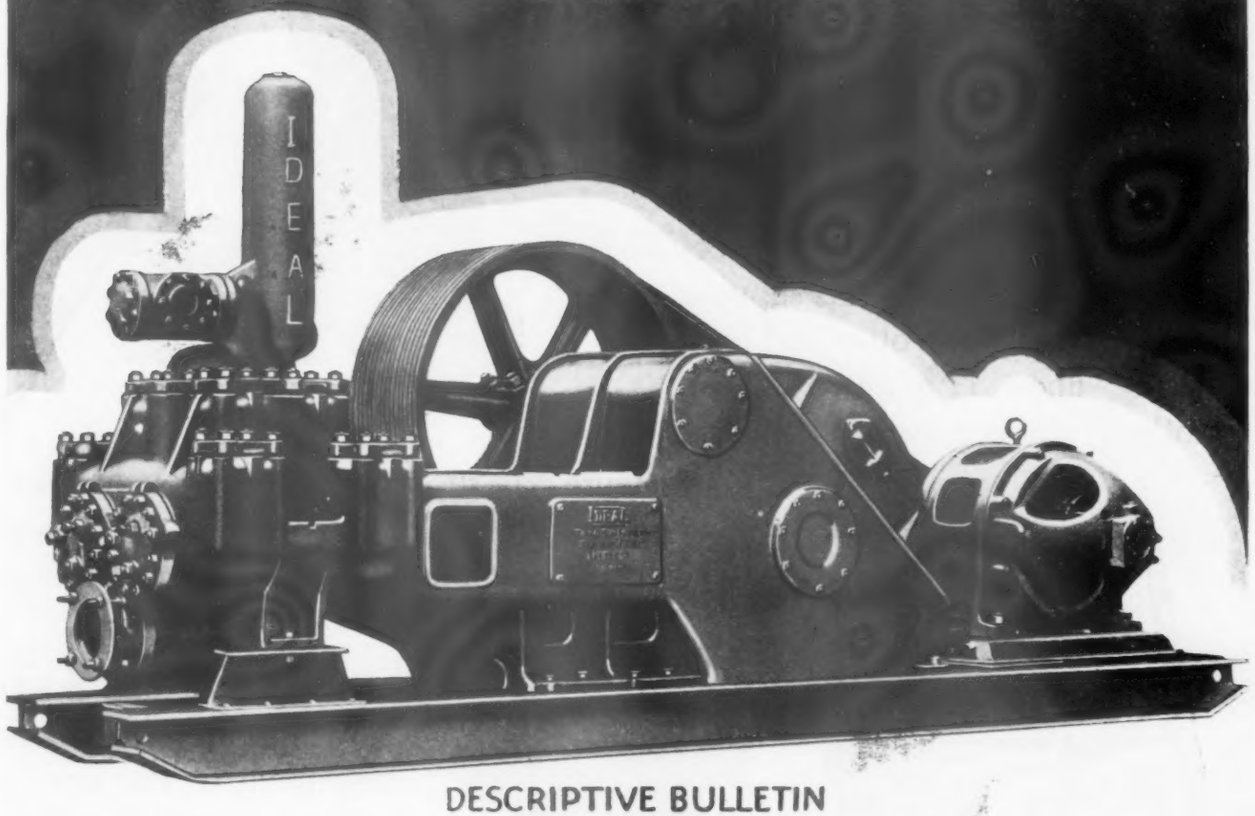
Booth 119 Texas Building

Exhibit: Venturi type valves for working pressures of 150 lbs., 250 lbs., and 500 lbs.; Regular valves for working pressure of 150 lbs., and 250 lbs., Jewell steel valves for

IDEAL

TYPE "B"

Power Driven Slush Pump



DESCRIPTIVE BULLETIN
No. 56 A
SENT ON REQUEST

THE NATIONAL SUPPLY COMPANIES

. . . The Taylor-Mildren

The Taylor-Mildren Clamp embodies several entirely new features hitherto unknown in drilling clamps. One remarkable feature is the manner in which the gripping pressure is applied to the line. This is obtained by means of the toggle joint principle instead of the modified hinge principle as used in all other clamps. (See Figure 4.)

A "toothed" projection on the back of each movable jaw virtually gears the two jaws together in such a manner that when either jaw is opened or closed the other jaw moves in the corresponding direction. This feature prevents slipping one jaw ahead of the other and fouling the line. (Figure 2 shows "toothed" projections.)

Figure 1

Figure 3 shows the component parts grouped together but disassembled. Note the utter simplicity of construction and very small number of parts.

Figure 2

Figure 4 is a line sketch showing the toggle arrangement of the jaws in both open and closed position. Note that when the jaws are closed the centers of the two fulcrums and that of the wire

OKLAHOMA IRON

Wire Line Drilling Clamp

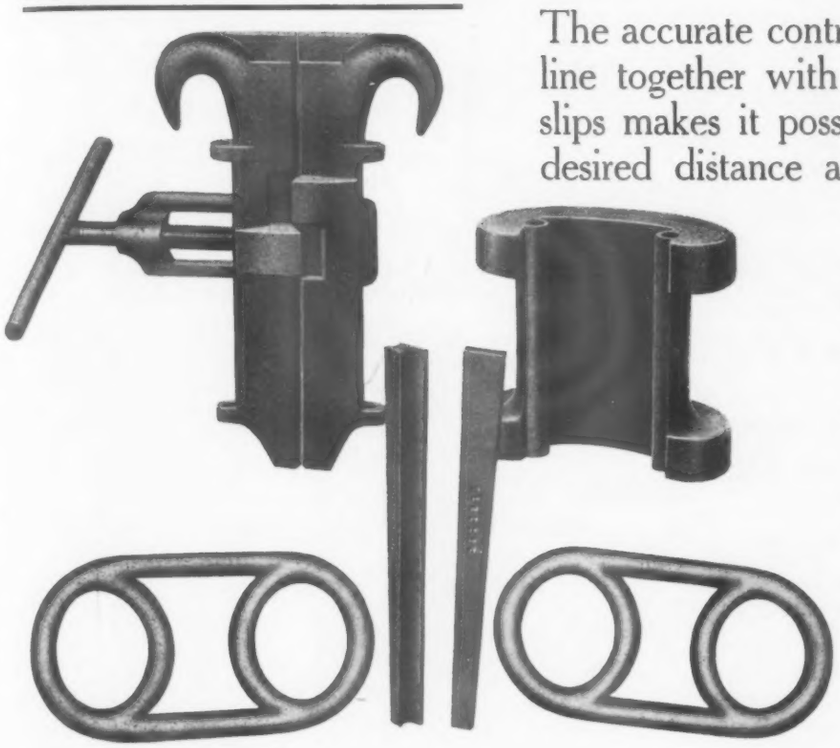


Figure 3

The accurate control of the slip action on the line together with the 22 inch long tapered slips makes it possible to "slip" the line any desired distance at all drilling depths without the line "jumping" through the slips or striking fire.

We furnish 22 inch long slips for 7-8 inch, 1 inch or 1 1-8 inch wire. These slips are of steel (heat treated) and are grooved on both edges which makes them reversible. They are tapered to compensate for wear.

A sand line groove is provided in the jaws of the clamp just ahead of the slips.

groove form an almost straight line.

This principle of leverage, together with the small frictional areas of the fulcrums increase the gripping efficiency of The Taylor-Mildren Clamp to a marked degree. This feature is very desirable in deep drilling where it is necessary to "slip" the line.

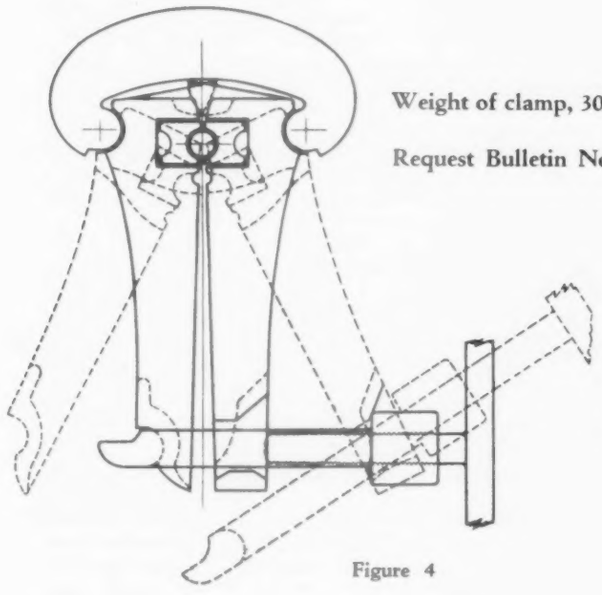


Figure 4

Weight of clamp, 300 lbs.

Request Bulletin No. 51.

WORKS, Tulsa, Okla.

air and gas lift and for mud pump service on rotary rigs; Service cocks for gas distribution work.

Representatives: E. D. Rogers, B. V. Emery, W. D. Emery, T. H. Campbell, R. I. Mayorga.

THE MERIAM COMPANY
Cleveland, Ohio

(See Refinery Supply Company)

METRIC METAL WORKS
Erie, Pa.

(See Westcott & Greis, Inc.)

MID-CONTINENT PETROLEUM CORP.
Tulsa, Okla.

Booth No. 12-13 Oklahoma Building

MIDLAND CHAMBER OF COMMERCE
Midland, Texas

Booth No. 13 Arcade Building

Exhibit: Signs, pictures and literature setting forth Midland's advantages as an oil headquarters city of the West Texas Permian basin and Eastern New Mexico. Pictures of the new 12-story Hogan Petroleum building, 250-room Hotel Scharbauer, and public buildings will be shown. The economy of distance by having offices in Midland will be emphasized in signs.

Representatives: Paul T. Vickers, Secretary of the Midland Chamber of Commerce; Charles A. McClintic, wealthy oil operator and cattleman.

MIDWEST PIPING & SUPPLY CO., INC.
St. Louis, Mo.

Booth No. 108 Texas Building

MILLIKEN VALVE CORPORATION
New York, New York

(See Refinery Supply Company)

THE MILLER IMPROVED GAS ENGINE COMPANY
Springfield, Ohio

Booth Space "B" Open Space

Exhibit: Watts-Miller 80 H.P. Single Cylinder Direct Gas Engine Driven Compressor Unit. Watts-Miller 170 H.P. Twin Cylinder Direct Gas Engine Driven Compressor Unit. Watts Automatic Oil Pumping Equipment.

Representatives: E. A. Watts, H. T. Bray, W. S. Smith, R. E. Martin, S. S. Holland, L. F. Watts, R. C. Burke, C. E. Beeman.

MINE SAFETY APPLIANCES COMPANY
Pittsburgh, Penna.

Booth No. 85 Texas Building

Exhibit: M-S-A Combination Hose Mask.; M-S-A Tank Gaugers' Masks; F-M Continuous Flammable Vapor Indicator; M-S-A Paint Respirator; Dustproof Respirator; H-H Inhalator (Resuscitation Device); M-S-A Waterproof First Aid Kit, Type D; M-S-A Heavy Duty First Aid Kit, Type D; M-S-A Mercuro Compress (First Aid Dressing for Minor Injuries); M-S-A Porcelain Danger Signs; M-S-A Flexonaml Danger Signs; Duralite Goggles; M-S-A Goggles; M-S-A Safety Clothing; M-S A Protective Hat; Torridaire Hot Pad; M-S-A First Aid Products; Portable Crowe Electric Saw.

Representatives: E. H. Kellogg, Sales Manager, Pittsburgh, Penna.; H. W. Richards, District Representative, Tulsa, Okla.

MODERN ENGINEERING CO.
St. Louis, Mo.

Booth No. 64 Texas Building

Exhibit: Complete line of MECO Welding and Cutting Equipment; New MECO Super X Torch.

Representative: Mr. Ira Fausek.

LEE C. MOORE & CO., INC.
Pittsburgh, Pa.-Tulsa, Okla.

Booth No. 66 Oklahoma Building

Exhibit: Two of our galvanized seamless-pipe-leg derricks bearing the A. P. I. license plates, complete with steel wheel equipment and steel machinery supports, steel walking beam, etc., will be on display on the outside area at the Exposition. Our Booth in the Oklahoma Building will display a miniature steel derrick, complete.

Representatives: C. R. Krause, president, Tulsa, Okla.; W. H. Payne, district manager, Dallas, Texas; M. R. Gayle, district manager, Shreveport, La.; J. C. Donaldson, Wichita Falls, Texas; G. A. Holloway, district manager, Wichita, Kansas; E. S. Anderson, district manager, Tulsa, Okla.; O. H. Dittmer, Tulsa, Okla.

MOORLANE COMPANY,
Tulsa, Okla.

Booth No. 43 Scientific Building

Exhibit: TUBE-TURNS, made by a new and exclusive process; Special TUBE-TURNS made in practically any radius, wall thickness and material, such as aluminum, brass, copper, nickel, steel and non-corrosive alloys.

Representatives: R. E. Fritsch, W. D. Moorer, T. G. Laney, Jr., Nate Lord.

MOSLER SPARK PLUG COMPANY
(See Magneto Ignition Corporation.)

MURRAY TOOL & SUPPLY CO.
Cleveland, Ohio

Booth Block E Open Air

Exhibit: Universal A. P. I. Wire Lines; Wilson-Snyder Slush Pumps.

Representatives: Claude M. Murray, J. M. Murray.

MUSKOGEE IRON WORKS, INC.
Muskogee, Okla.

Exhibit: "Muskogee Iron Works Hoist," in following models will be shown on the McCormick-Deering 10-20 Tractor: "Seminole" Model Hoist, on crawler type tractor; "Seminole" Model Pipe Handling Boom, on crawler type tractor; Model "Chief" Hoist, on wheel type tractor; Model "U" Double Drum Hoist, on wheel type tractor.

Representatives: F. G. Beckman, C. B. Grant, R. A. Goering, C. A. Baird, M. N. Coles.

NATIONAL CARBIDE SALES CORPORATION
Booth 33-34 Oklahoma Building

(See Air Reduction Sales Company)

NATIONAL FOAM SYSTEM, INC.
Philadelphia, Penna.

Booth 10 x 10 ft. Open Air

Exhibit: Fire Fighting Apparatus, consisting of National Chemical Ejectors; one National Super Chemical Ejector with a capacity of 3000 gallons of foam per minute; one Nationl Standard Chemical Ejector with capacity of 1200 gallons of foam per minute; one National Junior Chemical Ejector with capacity of 300 gallons of foam per minute; two Cans National A & B Foam Producing Chemicals; one National 2½ Gallon Foam Extinguisher; one National 2½ Gallon Recharge; one National one quart Tetrachloride Extinguisher; one National one quart Tetrachloride Extinguisher Refill.

Representative: Frank G. Benedict, vice president, Tulsa office.

NATIONAL LEAD CO.
St. Louis, Mo.

Booth No. 127 Texas Building

Exhibit: Reinforced Chemical Sheet Lead; Antimonial Sheet Lead and Pipe; Chemical Sheet and Pipe; Babbitt Metal; Solder— Bar and Wire; Die Castings; Litharge; Lead Oxides; White Lead; Lead Gaskets; Lead Wool; Lead Headed Nails; Lead Lined Iron Pipe and Valves.

Representatives: Edward S. Sieber, sales manager; George S. Owen, salesman; Roy Holman, salesman; Edw. J. Sheppard, chief chemist; J. W. Cary, Oklahoma salesman; F. J. Bromlitz, salesman.

NATIONAL LUMBER MANUFACTURERS ASSN.
Washington, D. C.

Booth No. 28 Scientific Building

Exhibit: A sixty-page bulletin just issued dealing with the use of lumber for oil industry purposes and based on two years careful investigation of the use of lumber in oil areas; a model of the improved type nailed wood derrick.

Representatives: A. C. Horner, R. Y. Hanlon.

NATIONAL PETROLEUM NEWS
Cleveland, Ohio

Booth 10 x 20 ft. Open Air

NATIONAL PIGMENT & CHEMICAL COMPANY
(See National Lead Company)

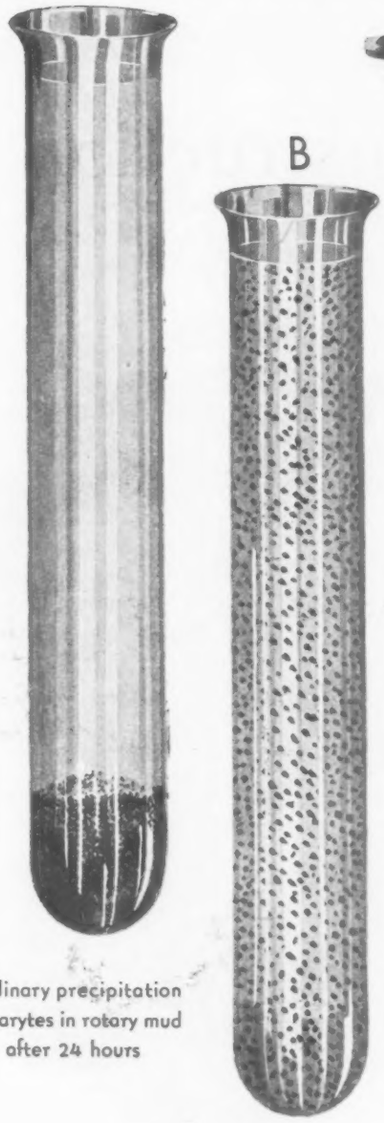
NATIONAL TANK CO.
Tulsa, Okla.

Booths Nos. 99-112 and open space Lot "B" Texas Bldg.

Exhibit: Oil and Gas Separators, working models Automatic Air-Gas Lift Intermitters; Welded Field Tanks.

Representatives: Jay P. Walker, president; Cecil G. Wells,

BALANCED MUD



A
Ordinary precipitation of barytes in rotary mud after 24 hours

B
Barytes suspended in solution of **Aquagel**, practically no precipitation after 24 hours

Aquagel (water jelly) is a patented product having the property of absorbing from 20 to 40 times its volume in water and remaining in complete suspension. It is extensively used in oil well drilling.

SUSPENSION

Aquagel insures perfect suspension and will do these things . . .

1

Make an evenly balanced, complete and continuous suspension possible even when conditions require the maximum of weight.

2

Prevent precipitation of barytes and other weight loaders, thereby permitting these to be used to their maximum efficiency.

3

Pumps are enabled to function without laboring by reason of its lubrication properties.

OTHER ADVANTAGES

Its plasticity helps build up a binding wall as drilling progresses.
It assists in sealing off porous formations.
It helps mud resist the action of gas.

INTERNATIONAL MINERALS & METALS CORP.

61 BROADWAY, NEW YORK CITY

DISTRIBUTION FOR FOREIGN TRADE AND THE UNITED STATES EXCEPT CALIFORNIA

Shaffer

TAYLOR-MILDREN

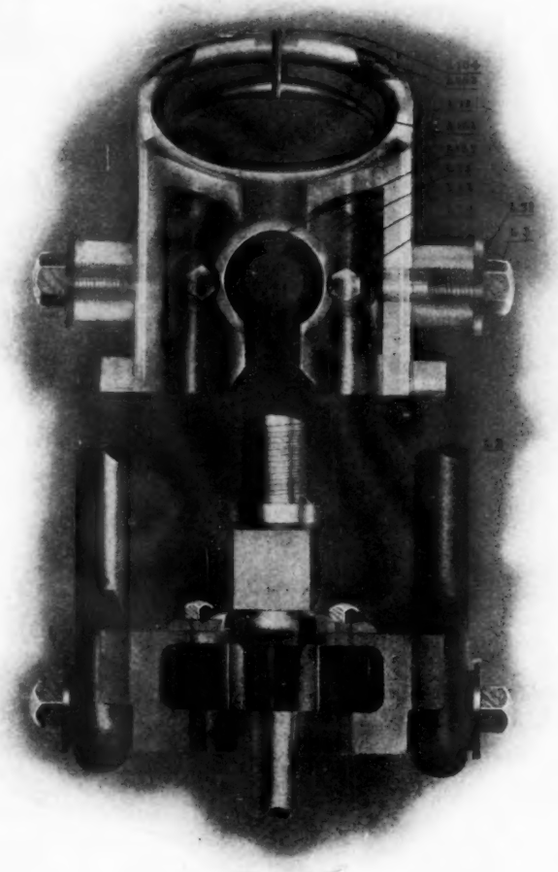
Safety Sucker Rod Elevator

Fool Proof construction *assures really* SAFE operation

Here is an elevator that gets the job done quickly, efficiently and at all times assures really safe operation. Embodies simplicity in construction and absolute safety in operation.

But two wearing parts—easily replaced at nominal cost . . . . light in weight—strength obtained by economic distribution of material . . . . made of a special heat treated steel having a tensile strength in excess of 120,000 pounds per square inch. Full floating latch pins will not bend or break—will not bend rods under any pulling method.

The weight of the sucker rods rests entirely on the latches which in turn distribute the load throughout the entire body by means of a bearing member inserted between the latches and inner side walls of the elevator body.



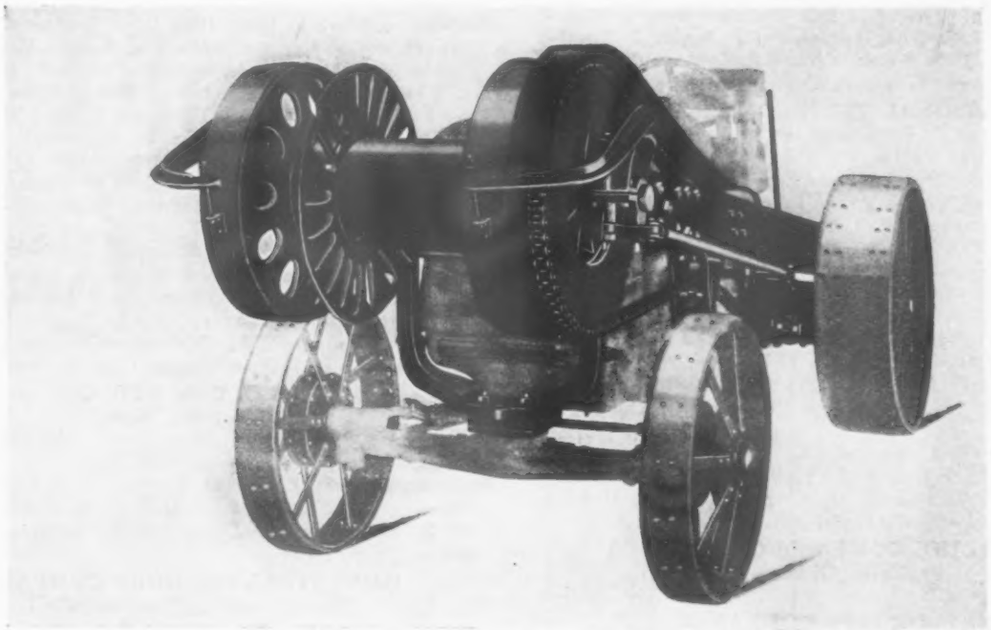
The SHAFFER

PATENTED OIL

Shaffer Products
"are precision made"

Shaffer
Hoisting Equipment
The BEAR CAT HOIST

BEAR CAT HOISTS MEET EVERY OIL FIELD REQUIREMENT



The SENIOR *Bear Cat Hoist Mounted on the* 10-20 McCormick-Deering Tractor

For Speed, Efficiency and Economy in Operation the Shaffer line of hoisting equipment is now complete with the introduction of the new Super Bear Cat Hoist—Shaffer has a Bear Cat Hoist to meet every oil field requirement.

Junior Bear Cat Hoist for wells up to 2500 ft.
Senior Bear Cat Hoist for wells up to 3500 ft.
Mounted on the 10-20 McCormick-Deering Tractor.

Super Bear Cat Hoist for wells from 3600 ft. and deeper.
Mounted on the 15-30 McCormick-Deering Tractor.

Comparative maintenance costs year after year prove Bear Cat's superiority.

SPECIALTY CO.

WELL EQUIPMENT

Factory and General Offices: 113-115 South Denver, Tulsa, Oklahoma

See us in our new modern plant after November 1st, corner North Atlanta and King Street.

P. O. Box 1434 Telephone 7271

secretary and treasurer; Guy O. Marchont, vice president; J. E. (Ernie) Richards, salesman.

NATIONAL TANK SEAL COMPANY
Tulsa, Okla.

Booth No. 59 Texas Building

NATIONAL TOOL & METALS COMPANY
Torrance, Calif.

Booth No. 14, also 10 x 10 open air space near Oklahoma Bldg., Texas Building

Exhibit: DRILLITE—The Metallic Diamond-Sub Paste; ANGLITE—The Super Diamond-Srb Insert Metal NATIONAL Casing Protectors; NELSON Self-Expanding Slush Pistons. In open air space will be welding demonstrations on Drillite and Anglite, with both the arc and acetylene process.

Representatives: C. L. McCorkindale, advertising manager, Torrance, Calif.; Jack C. Dodson, salesman, Torrance, Calif.; S. M. Akeyson, engineer for National Tool & Metals, Inc.; J. S. Cook, demonstrating welder; J. E. Pooler, secretary, Torrance, Calif.

NATIONAL TUBE COMPANY
Pittsburgh, Pa.

Booths Nos. 24 to 29 Oklahoma Building

Exhibit: Oil Country Tubular Products, including long length National Seamless Line Pipe, 10¾-in. O.D., 45 feet long; long length A. P. I. Seamless Special Alloy Drill Pipe, 6⅝-in. O.D. 25.20-lb., 30 feet long; long length A. P. I. Casing, 8⅝-in. O.D. 32.00-lb., 30 feet long; samples showing a cable tool string of A. P. I. Casing, telescoped and windowed to show clearance; samples windowed to show joint of National Diamond BX and Diamond B8 Special Alloy Casing. A. P. I. Drill Pipe; Special Alloy Drill Pipe, A. P. I. Oil Well Tubing; A. P. I. External Upset Tubing; Slip Joint Line Pipe, and Cracking Still Tubes.

Representatives: J. J. Kennedy, D. H. Ramsbottom, J. B. Graham, W. J. McKee, A. L. Powers, E. R. Braman, W. H. Reese, T. W. Thorne, W. C. Mosen, H. H. Muhlenberg, E. L. Wycoff, W. L. Schaeffer.

NATURALINE COMPANY OF AMERICA
Tulsa, Okla.

Booth No. Aviation Section

NAYLOR PIPE COMPANY
Chicago, Ill.

Booths Nos. 20-21 Oklahoma Building

Exhibit: Sample of Naylor Pipe; motion pictures showing installations of Naylor Pipe in the oil fields; series of frame photographs showing Naylor Pipe in the field.

Representatives: E. W. Hough, vice president and director of sales; L. S. Allen, district sales manager, Tulsa; E. C. Kirby, district sales manager, Houston.

NEILAN- SCHUMACHER COMPANY
(See C. F. Camp Company.)

W. H. NICHOLSON & COMPANY
(See Vnison-Canter Company)

NORMA HOFFMAN BEARING COMPANY
(See Magneto Ignition Corporation.)

NORRIS BROS., INC.
Robinson, Ill

Booth No. 124 Texas Building

Exhibit: Pumping Equipment.

Representatives: D. E. Norris, Paul B. Norris, Frank W. Norris, Robinson, Ill.; S. R. Clawson, Fort Worth, Texas; Walter Hall, Owensboro, Ky.; W. E. Sexton, Tulsa, Okla.

NORTHERN EQUIPMENT COMPANY
(See Vinson-Canter Co.)

NORTHERN PUMP COMPANY
Minneapolis, Minn.

Booth No. .... Open Air

(See Clark Bros. Company.)

NORVAL MOTOR CORPORATION
Tulsa, Okla.

Outside—Open Air 10 x 50 feet.

Exhibit: One Dodge Brothers 3-ton chassis and closed cab equipment with the following accessories adaptable to the oil field hauling requirements: Braden body winch; Spencer Trailer. Exhibit will also be loaded with a bailer furnished by the Hinderliter Tool Company of Tulsa.

Representatives: J. C. Webb, P. D. Dimmitt, J. H. McGilless, Jesse Norval, Jr.; E. C. Ford, (representing Dodge Brothers Corporation); J. H. Mack, (director of National Fleet business for Dodge Brothers.)

OAKITE PRODUCTS, INC.
New York

Booths Nos. 61, 62, 63 Texas Building

Exhibit: Cleaning materials and methods.

Representatives: H. L. Gray, L. B. Johnson, R. J. Henry, D. O. Crawford.

WALTER O'BANNON COMPANY
Tulsa, Okla.

Booth No. 104 Texas Building

Exhibit: O'Bannon Liner Barrels; O'Bannon Cro-Lay Barrel Tubes; O'Bannon Balls and Seats; Moody Tubing Spider; O'Bannon Improved Polished Rod Clamp; O'Bannon-Stewart Sucker Rod Hook; O'Bannon Safety Sucker Rod Elevators; O'Bannon Hinged Bell Nipples; O'Bannon "S" Link; O'Bannon Frontlock Sucker Rod Hook; O'Bannon Safety Tubing Hook; O'Bannon Improved Univ. Sucker Rod Socket; O'Bannon Baby Red Sucker Rod Socket; O'Bannon Jumbo Horn Socket; Viking Rotary Pumps.

Representatives: Walter O'Bannon, president and manager; Dewey Nichols, secretary and treasurer; C. H. Bloom, chief engineer; Arthur Claus, shop foreman; Paul H. Wendel, sales manager; John L. Rice, salesman, J. S. Gilliam, salesman; R. H. Oldham, salesman; L. G. Wood, salesman; E. D. May, salesman; Cam T. Cox, salesman.

THE O. C. S. MFG. CO.
Coffeyville, Kans.

Booth No. 1 Oklahoma Building

Exhibit: O. C. S. Universal Rig Front.

Representatives: J. W. McKewon, C. A. Jones, W. P. Turner, F. D. Stanley, C. B. Morton, A. G. Evans Lombe, D. R. Brown, D. C. Myers; Tulsa address, 1405 Philtower Bldg.

OHIO STEEL FOUNDRY COMPANY
(See Vinson-Canter Company.)

OIL CITY IRON WORKS
Shreveport, La.

Booth 60 x 70 Open Air

(See W-K-M Company, Inc.)

THE OIL CONSERVATION ENGINEERING CO.
Cleveland, Ohio

Booths Nos. 81 and 129 Oklahoma Building

Exhibit: We will display Oceco 2- bolt pipe coupling; one-piece bubble trays; one-man bell caps; conservation vent valves; flame arrestors; still safety valves; swing line equipment; gauge and thief hatches and manhole covers; automatic tank gauges and look boxes.

Representatives: H. H. Fleming, vice president and general manager; Horace W. James, manager of North Central district; W. H. McGunable, manager of Tulsa district.

OILDOM PUBLISHING COMPANY
Bayonne, N. J.

10 x 10 ft. Outside Space

OILDRAULIC LIFT COMPANY
Memphis, Tenn.

Booth 15 x 40 feet, Lot D

OIL & GAS JOURNAL
Tulsa, Okla.

Booth 20 x 20 feet Open Air

OIL FIELD ENGINEERING
(See Chilton-Class Journal Company.)

OIL STATES MFG. COMPANY
Tulsa, Okla.

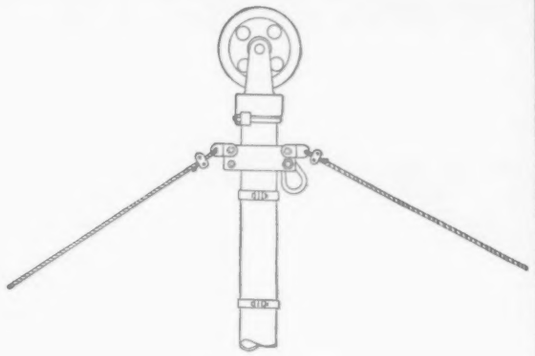
(See Dresser & Gorton, Inc.)

THE OIL WEEKLY
Houston, Texas

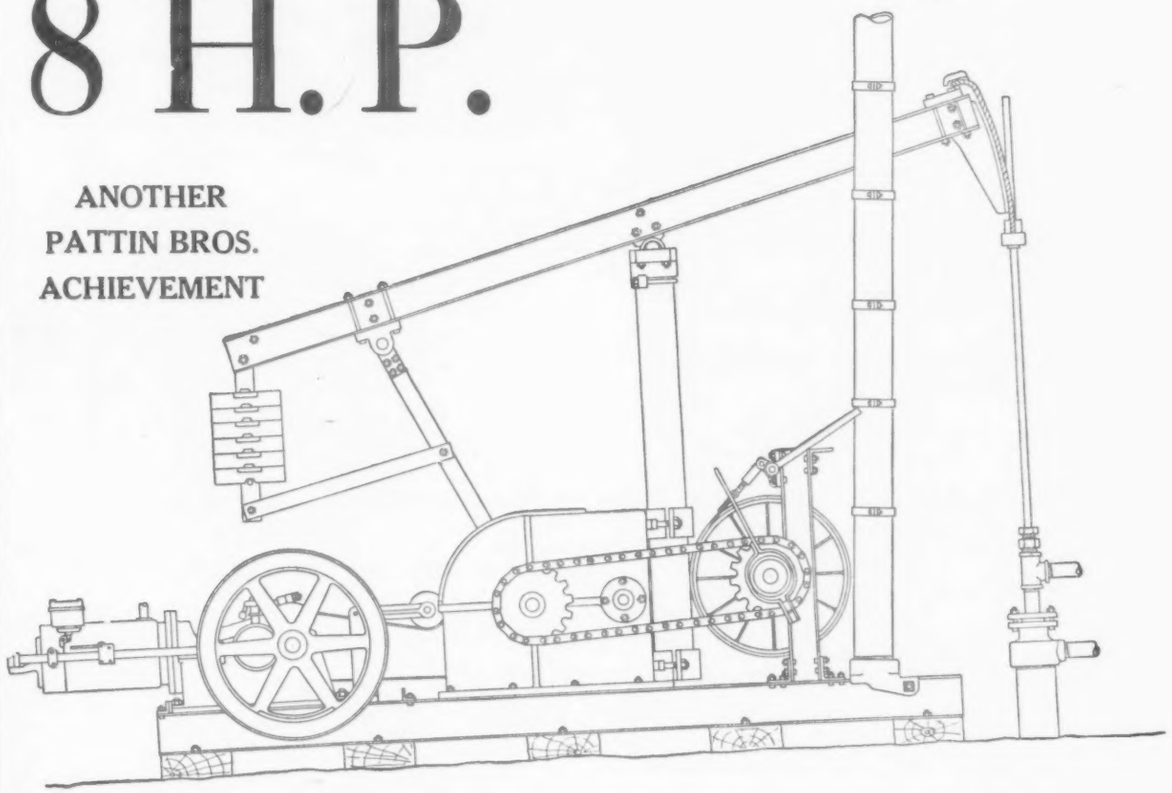
Booth 18 x 18 feet, Open Air

Rprsntatives: R. L. Dudley, A. L. Burns, S. W. Robinson, J. D. Isaacks, W. W. Pigue, Dick Swinsky, J. F.

NEW~ Single Well 8 H.P.



ANOTHER PATTIN BROS. ACHIEVEMENT



THIS new Pattin Bros. power is a single well 8 H.P. beam pumping unit belt driven with belt tightner running on roller bearings. All gears are enclosed, running in oil, and every bearing on power, including pitman, has roller bearing.

It has a 36 ft. mast, spool will hold 3,000 ft. ½ inch line; two brake bands 26 inches diameter, 3 inch face, operated by hand or foot clutch on spool. Shaft can be thrown in or out while spool is running. Engine is fitted with force feed lubricator suitable for twenty-four hours run.

Mast and spool are independent of pumping unit and can be moved from one power to another, thereby saving the expense of mast and spool for every power.

We recommend this power for wells 2,500 feet deep. It will pull rods or tubing or handle bailer.

Prices and circular on request.

PATTIN PRODUCTS

- Gas Engines
- Air and Gas Compressors
- Vacuum Pumps
- Shackle Irons
- Pumping Powers
- Oil Country Boilers
- Steel Storage Tanks
- Water Pumps
- Torpedo Reels and Clamps
- High Pressure Tanks
- Howe Casing Heads

The Pattin Brothers Company

MARIETTA, OHIO

Tulsa, Okla.	Coleman, Texas	Wichita Falls, Texas	Putnam, Texas	Bradford, Pa.
A. S. Dunnington	J. Barnes	J. W. Noland	Putnam Supply Co.	The Blaisdell Machinery Co.

THE PATTIN BROS. CO.

Carter, Jr., Roy Leigh, Grady Triplett, Warren Baker, W. E. Green, O. R. Waller.

OIL WELL CORE DRILLING CO.
(See P. L. & M. Company)

THE OIL WELL IMPROVEMENT COMPANY
Tulsa, Okla.

Booths Nos. 51-52 Oklahoma Building

Exhibit: Control Casing Heads; Roller Oil Savers; Apex Polished Rod Stuffing Boxes; High Pressure Control Heads; Berry Pattern Casing Heads; Tee Casing Heads; Sand Line Caps; Casing Head Tops; Rubber Packing for the above named articles and a high pressure hook-up for high pressure wells.

Representatives: J. Burr Gibbons, vice president; R. M. Lee, Ed Ligon and I. V. Morris, salesmen.

OKLAHOMA IRON WORKS
Tulsa, Okla.

Booths Nos. 40-41 Texas Building

Exhibit: The Wright Forged Steel Stuffing Box Casing Head with split casing ring; one 12½-in. x 8¼-in. forged steel La. pattern casing head; one Taylor-Mildren Wire Line Drilling Clamps Crown Block Bearings; one 72-in. OIW Rotary Traveling Block, Forged Steel Fittings.

Representatives: A. F. Bourne, H. R. Boughner, R. L. Cobb, J. B. Wrigley, Wm. Wright, M. G. Scott, P. F. Corgiat, J. S. Taylor, R. C. McMichael, W. D. Taylor, A. J. Padar.

OKLAHOMA NATURAL GAS COMPANY
Tulsa, Okla.

Booth No. 71 Oklahoma Building

Exhibit: Estate Stoves; Moore Stoves; Homestead Heaters; Incinerators.

OKLAHOMA STEEL CASTINGS COMPANY
Tulsa, Okla.

Booth Nos. 46-47 Texas Building

Exhibit: Our exhibit will consist of electric steel castings which are used by the various branches of the oil industry. There will be shown electric steel castings required in connection with drilling, pumping, cleaning out, refining, pipe line and transportation operations. "Tuf-Wear" alloy steel castings, machined and heat treated for parts where exceptional toughness, strength and wear resistance are desired, will be displayed. The exhibit will demonstrate the latest developments in the oil industry in connection with the growing use of cast electric steel for heavy duty equipment.

Representatives: E. H. Cornelius, B. Fleeger, L. C. Batson, S. J. Moore, A. Johnson, W. C. Hackbarth, E. M. Newland, J. B. Lininger.

OXWELD ACETYLENE COMPANY
(See Linde Air Products Co.)

PACIFIC PIPE & SUPPLY CO.
Los Angeles, Calif.

Booth 10 x 10 feet, Open Air

PACKARD CABLE COMPANY
(See Magneto Ignition Corporation.)

PARKERSBURG RIG & REEL CO.
Parkersburg, W. Va.

Booths Nos. 74-75 Texas Building

Exhibit: 122 Foot Combination Steel Derrick, complete with enclosures; all steel Rig Equipment, Bull Wheels, Calf Wheels, Chain Driven Sand Reel. (A complete Drilling Rig erected on the Plaza.) Parkersburg Type M Steel Band Wheel with Triple-tug Tug Pulley and 16-in. wood face mounted in 6-in. A. P. I. boxes on Parkersburg "A" Frame Type Jack Posts. Parkersburg 6-Sheave Roller Bearing Crown Block for Rotary or Combination drilling; Parkerburg-Superior Oil & Gas Separator; Parkersburg I C R Steel Walking Beam mounted on "A" Frame; Type Steel Sampson Post complete with Type HB. Steel Pitman; two Parkersburg Aluminum Oil Tanks of 500 bbls. capacity.

Representatives: J. M. Crawford, D. B. Crawford, H. D. Crawford, S. P. Wallace, E. J. Broberg, E. L. Byer, Wm. Eustice, J. A. Thomas, E. E. Baer, H. C. Hall, A. M. Bowman, G. O. Dunmire, P. L. Brooks, Wm. Schwemlein, S. B. Gray, Chas. Ferguson, G. H. Parker, L. L. Anthony, L. W. Whetstone, E. E. Dunmire, H. D. Gray.

PEERLESS SUPPLY CO.
Tulsa, Okla.

Booth No. 29 Texas Building

Exhibit: McKissick Improved Safety Tubing and Casing Blocks; Peerless All Steel Load Binders or Boomers; Peerless-McKissick Floating Type Stuffing Boxes; McKissick Combination Sand Trap, Tubing Bleeder and Standing Valve; Peerless Bronze Sucker Rod Guides; Peerless Chain Load Jack.

Representatives: W. H. McKissick, E. G. Blaylock, E. A. Shaw, W. D. McKinley, O. M. Smith, Leo Haubert.

PENNSYLVANIA PUMP & COMP. CO.
(See Clark Brothers Company)

PETROLEUM CHEMICAL CO.
Tulsa, Okla.

Booth 46 Oklahoma Building

Exhibit: Kemy Oil Treating Compound.

Representatives: W. L. Walker, H. E. Harvey, George Conley, Allen Ingle, Hal. McClain.

PETROLEUM ENGINEER
Tulsa, Okla.

Booth No. 25 Texas Building

THE PETROLEUM MARKETER
Houston, Texas

Booth 18 x 18 feet, Open Air

Representatives: R. L. Dudley, A. L. Burns, S. W. Robinson, J. D. Isaacks, W. W. Pigue, Dick Swinsky, J. F. Carter, Jr., Roy Leigh, Grady Triplett, Warren Baker, W. E. Green, O. R. Waller.

PETROLEUM REGISTER
(See Chilton Class Journal Company.)

THE PERMUTIT COMPANY
New York, New York

Booth No. 15 Texas Building

Exhibit: Model of water softening and filtering equipment Ranarex Recording Instruments.

Representatives: J. R. Crocker, Kansas City, Mo.; J. P. Kelly, Kansas City, Mo.; P. V. Barmann, Dallas, Texas.

PITTSBURGH EQUITABLE METER CO.
Tulsa, Okla.

Booth No. 35-36 Scientific Building

PITTSBURGH STEEL PRODUCTS CO.
Pittsburgh, Pa.

Booth No. 69 Texas Building

Exhibit: Pittsburgh Seamless Casing, High Tensile Casing, Drill Pipe, Line Pipe, Still Tubes.

Representatives: A. S. Vandervoort, Jr., representative, Houston, Texas; S. E. Elder, representative, Tulsa, Okla.; Elmer T. Wible, advertising manager, Pittsburgh, Pa.; C. V. Lally, general manager of sales, Pittsburgh, Pa.; Morvin Thomas, district sales manager, St. Louis, Mo.

P. L. & M. CO. (Blackor Company—subsidiary)
Los Angeles, Calif.

Booth No. 9 Arcade Building

Exhibit: Blackor, super hard facing metal; demonstration of application to oil well tools with electric arc welding machine; Borway Drilling Bit; Casing Roller; Oil Well Core Drilling Bit.

Representatives: Fulton Lane, general manager; C. G. Wertzberger, district sales manager.

PLYMOUTH CORDAGE COMPANY
North Plymouth, Mass.

Booths Nos. 82 and 129 Texas Building

Exhibit: Manila Oil Well Cordage, 4-Strand Manila Yacht Torpedo Line, Cat Head Line, Derrick Line, Manila Bull Rope, Manila Drilling Cable, New Zealand Bull Rope; Manila Rope 12-in. in circumference, together with a display of Manila fiber which is produced in the Philippine Islands.

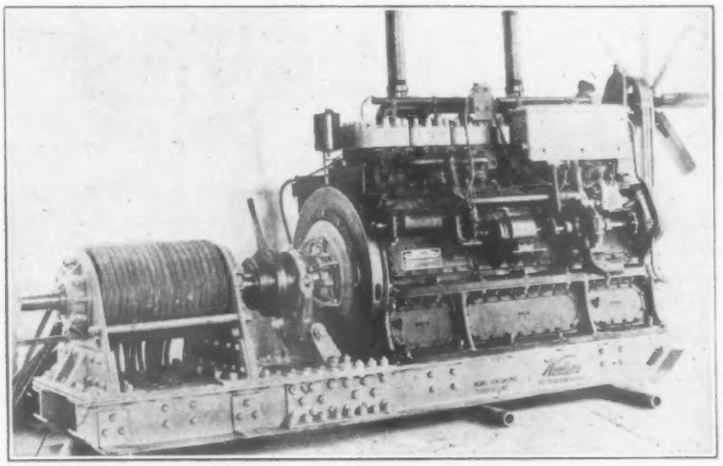
PODBIELNIAK & RAIGORODSKY
Tulsa, Okla.

Booth No. 29 Scientific Building

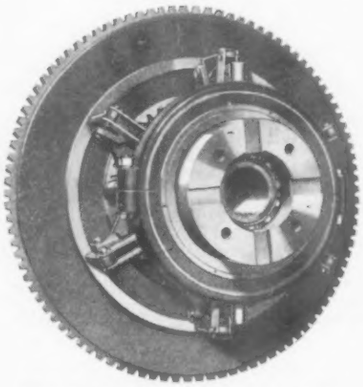
THE WM. POWELL COMPANY
Cincinnati, Ohio

Booths Nos. 41-42 Scientific and Technical Building

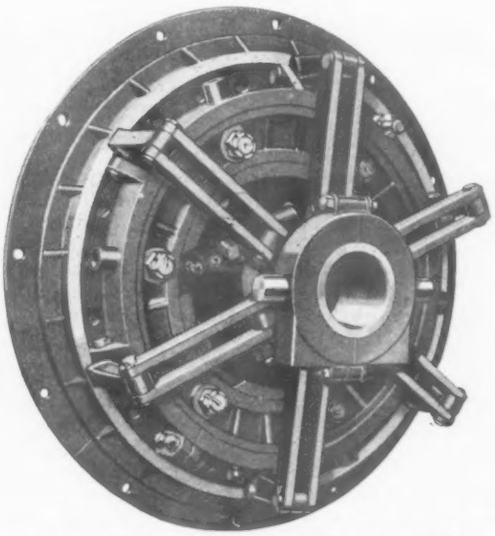
Exhibit: Bronze, Iron and Steel Globe, Angle, Check, Gate and Safety Valves designed and processed to be oil and



275 H. P. plant of new rotary rig for deep drilling. Note compact clutch installation.



Clutch shown in engine above. 24" dia. Dry plate gear tooth drive with large excess capacity.



Draw works clutch. 42" dia. The most powerful clutch used in oil field work. Handles 5000 ft. string of casing easily

New Developments In

TWIN DISC CLUTCHES

To Be Shown at the Tulsa Exposition

ROTARY drilling to depths of 4500 to 5000 feet with handy, economical gas engine power is now an accomplished fact. The highly efficient rig recently developed for this purpose uses Twin Disc clutches at two important control points.

A 24 inch clutch, built into the fly wheel of a 275 H.P. Waukesha engine, starts and carries the entire load.

A 42 inch clutch, with working capacity of over 400,000 inch pounds, controls the drawing of casing.

These two unusual clutches will be included in the Twin Disc exhibit at Tulsa. A cordial invitation is extended to production engineers and others interested in efficient equipment, to visit our exhibit and inspect the wide variety of dependable Twin Disc developments now available for oil field work.

TWIN DISC CLUTCH COMPANY

RACINE WISCONSIN

gasoline tight; also Oilers, Lubricators, Grease Cups, Water and Oil Gauges, and sundry engineering appliances especially adapted for the Oil Industry.
Representatives: R. D. Allen, E. K. Pierce, A. T. Crump, E. R. Noll, Jas. Coombe, Wm. Heilig.

THE PRAIRIE OIL & GAS CO.
THE PRAIRIE PIPE LINE CO.
Tulsa, Okla.

Booths Nos. 100-101-110-111 Texas Building
Exhibit: Miniature of our General Office building at Independence, Kans.
Representative: Fred S. Cook.

PRESS SIGN COMPANY OF ST. LOUIS
St. Louis, Mo.

(See Burdick Enamel Sign Co.)

PREST-O-LITE COMPANY, INC.
(See Linde Air Products Co., Inc.)

PRODUCERS & REFINERS CORP.
(See Prairie Oil & Gas Company)

PROGRESSIVE BRASS MFG. CO.
Tulsa, Okla.

Booth No. 10 Texas Building
Exhibit: Brass, Bronze, Aluminum, Monel Metal, Everdur and Special Alloy Castings; Finished Bronze Replacement Parts for Oil Country Engines; Metals used in our Alloy Castings.
Representatives: E. J. Thomas, president; N. A. Doolittle, manager; C. O. Beckett.

PRATT & WHITNEY CO.
Hartford, Conn.

Booth No. 10 Scientific Building
Exhibit: Oil Country Gages; Working and Master A. P. I. Taper Joint gages, representing Grand Master, Regional Master, Manufacturers Reference Master and Working Gages; A. P. I. Cable Drilling Tool Joint Gages; A. P. I. Sucker Rod Gages, showing suggested working gages for box and pin threads; Supermicrometer; Hoke Precision Gage Blocks.
Representatives: L. E. Schultz, S. B. Terry.

PROTECTIVE METALS, INCORPORATED
Tulsa, Okla.

Booths Nos. 31, 32, 33 Texas Building
Exhibit: The Udylite Process of Cadmium Plating applied on: Structural Steel, Pipe, Bolts and Nuts, Steel Window Sash, Reinforcement Rod, Sucker Rod, Metal Lath, Fencing Equipment, etc. Chromium Plating applied on: Pump Rods, Cylinder Liners, Valves, Working Barrels, Still Tubes, Pump Plungers, etc. For the prevention of rust and corrosion and erosion.
Representatives: W. E. McCandlish, R. W. McCandlish, Ross Mayo, Austin Thurman, J. C. Byars.

THE PYLE-NATIONAL COMPANY
Chicago, Ill.

Booths Nos. 65-66 Texas Building
Exhibit: Floodlights; Turbo-Generators; Vaporproof Fittings; Electrical Wiring Fittings.
Representatives: J. A. Amos, vice president in charge of sales and service; R. L. Kilker, Alex Johnson.

PYRENE MANUFACTURING COMPANY
Kansas City, Mo.

Booth No. 134 Oklahoma Building
Exhibit: Fire Extinguishing products consisting of: Pyrene Extinguishers in the 1 Pint, 1 Quart, 1½ Quart, 1 Gallon and 2 Gallon Sizes; Phomene (Foam Type) Extinguishers in the 2½ Gallon, 10 and 40 Gallon Sizes; Guardene 2½ Gallon Soda and Acid Extinguisher; Phomene (Foam Type) Accumulators. Pyrene Chains will be displayed in both Truck and Passenger Car Sizes.
Representatives: John J. Doherty, Kansas City district manager; S. C. Moore, representative in the Oklahoma and Kansas territory; Ben S. Allen, representative in the Texas territory; S. O. Parsons, representative in Colorado, New Mexico, Utah, Idaho and Wyoming territory.

THE RAJAH COMPANY
(See Magneto Ignition Corporation)

RATHBUN COMPANY, INC.
El Paso, Texas

Booth 10 x 20 feet, Open Air

THE REFINER AND NATURAL GASOLINE MANUFACTURER
Houston, Texas

Booth 18 x 18 feet, Open Air
Representatives: R. L. Dudley, A. L. Burns, S. W. Robinson, J. D. Isaacks, W. W. Pigue, Dick Swinsky, J. F. Carter, Jr., Roy Leigh, Grady Triplett, Warren Baker, W. E. Green, O. R. Waller.

REFINERY SUPPLY COMPANY
Tulsa, Okla.

Booths Nos. 8-9 Scientific Building
Exhibit: R. S. and Ac-Me Specialties; Gravitometers, R. S. Specific Gravity Gas Balance; Ac-Me Pressure Vacuum Pump, Improved Ac-Me Specific Gas Gravity Balance, Ac-Me Calculator for Orifice Meters; Low Temperature Fractionating Apparatus, Improved form R. S. Orifice Well Testers; R. S. Charcoal Tube Adapters; Reid Vapor Pressure Bombs; R. S. Alligator Oil Thief; Ac-Me Angle and Plane Projectors; and in addition to jobbing lines Tag Oil Testing Materials; Meriam Manometers and Flow Meters; Hays Flue Gas Recorders and Draft Gauges; Milliken Packless Pressure Lubricated Valves.
Representatives: W. A. Schlueter, H. B. Goodenough, J. B. Okeson, E. V. Weaver, C. T. Williams, Foster B. Milliken and Phil. T. Sprague.

REGAN FORGE & ENEINEERING COMPANY
San Pedro, Calif.

Booth 30 x 35 feet, Lot E
Exhibit: New Casing Hook;. Improved Type A Regan Crown Block; No. X New Regan 76-in. Traveling Block.

JOSEPH REID GAS ENGINE CO.
Oil City, Penna.

Ouside Exhibit
Exhibit: Reid Type C 45 HP Enclosed Two Cycle Gas Engine with Pressure Oiling System and No. 55 Heavy Duty Reverse Rig; Reid Type B 40 HP Four Cycle Gas Engine with Timken Bearing equipped Cut-Off Type Rig; Reid Fulton Type Look Boxes for Refineries.
Representatives: John Reid, H. L. Hileman, R. D. Irwin.

RELAY MOTORS CORPORATION
Lima, Ohio

Booth 15 x 30 feet, Open Air

THE RELIANCE MANUFACTURING COMPANY
Pasadena, Calif.

(See Westcott & Greis, Inc.)

REPUBLIC RUBBER COMPANY
(See Bovaird Supply Company)

RESISTCOR ENGINEERING CORPORATION
Tulsa, Okla.

Outside Space 30 x 70 feet, Open Air
Exhibit: Pipe Line Coating division—all the different underground coatings will be displayed, K. H. Burton, in charge; E. R. McCarthy, Roy M. Taylor, R. D. Hardcastle, J. B. Heymes, Fred Devenney, assisting. Equipment division—all the latest types of oil field and pipe line equipment; McCormick-Deering Tractors; Seminole Booms, Samson Winches, Samson Pulling Machines; W-K-M Equipment. Mr. Pat Lewis in charge, assisted by Bo Bardsley, Mr. Grant of Muskogee Iron Works, Mr. Sutton of the Samson Winch Company.

H. RICKMAN S-R TUBING PROTECTORS
Tulsa, Okla.

Booth No. 25 Arcade Building
Exhibit: S-R Tubing Protectors; Crimper Wrenches; Put on Wrenches.
Representative: H. Rickman.

RIDGE TOOL COMPANY
Elyria, Ohio

Booth 10 x 20 feet, Open Air
Representatives: R. C. Chamberlin, Mid-Continent representative; H. E. Bowes, Western representative.

ROBINSON ORIFICE FITTING CO.
Los Angeles, Calif.

(See Westcott & Greis, Inc.)

ROBINSON PACKER CO.
Tulsa, Okla.

Booth No. 5 Oklahoma Building
Exhibit: The Limit Plug; Three-in-one Packer; Special Bot-

for the OIL INDUSTRY

(FIELD OFFICE)

The top photograph shows an "oil city" built almost overnight by Houston Ready Cut House Co.

To the right is a typical small building especially suitable for field office — or may be used for other housing purposes.

At the bottom is shown typical bunk house and commissary — plans permit adding or leaving-off sections to make the size desired.

Houston Ready-Cut Buildings include plans and stocks for every housing purpose. These buildings are the standard of the oil industry. Large manufacturing facilities, standard designs and complete stocks permit of EXTRAORDINARY quick service.

Houston Ready-Cut Houses are most economical, being sectional they are easily and quickly erected — and may be taken down and re-erected. They have long life and good appearance — only the best of materials are used.

Send for catalog — let us figure on your next requirements — Expert facilities.

(BUNK HOUSE AND COMMISSARY)

HOUSTON READY CUT HOUSE CO.

tom Hole Packer; Rubber Cup Packer; Smith-Sawyer Air Packer; Tool Setting Cave Packer; other oil and gas well packers.

Representatives: H. L. Kime, H. R. Vreeland, H. D. Parker, S. A. Tener, C. W. Fisher

ROBINSON SUPPLY COMPANY
Tulsa, Okla.

(See Wertzberger Derrick Company)

ROONEY-KRAFT COMPANY
Tulsa, Okla.

Open Air

(See Kraft-Ramsey Mfg. Company.)

SAN ANGELO BOARD OF CITY DEVELOPMENT
San Angelo, Texas

Booth No. 16 Arcade Building

SAN ANTONIO CHAMBER OF COMMERCE
San Antonio, Texas

Booth 10 x 10 feet, Lot F

SCHOTT TWO-STROKE MOTOR CO., INC.
Kansas City, Mo.

Booth 10 x 20 feet, Open Air

Exhibit: Schott Two-Stroke Engine.

SCHRAMM, INC.
West Chester, Pa.

(See Leland Equipment Company)

SCINTILLA MAGNETO COMPANY, INC.
(See Magneto Ignition Corporation)

SERVICE STATION EQUIPMENT COMPANY
Bryan, Ohio

(See Bennett Pumps Corporation)

WM. D. SEYMOUR COMPANY
New Orleans, La.

(See Modern Engineering Company)

SHAFFER SPECIALTY COMPANY
Tulsa, Okla.

Booth 20 x 30 feet, Open Air

Exhibit: Shaffer Super Bear Cat Hoist; Taylor-Mildren Tubing Elevator; Taylor-Mildren Tubing Tongs; Dean Safety Boiler Gauge Cock.

Representatives: Ernie J. Shaffer, Harry Hinish, George W. Shaffer.

SHARPSVILLE BOILER WORKS CO.
Sharpsville, Pa.

Booth No. 65 Oklahoma Building

Exhibit: Sharmeter, 500 Series Electric and Hand Operated Shar-Pit; All Steel Drain and Grease Pit; Sharlite Floodlights; Airport Fueling Systems.

Representatives: J. S. Lewis, Tulsa; H. S. Peel, Sharpsville, vice president and manager of sales; C. D. Fagan, Sharpsville, president.

SHELDON MACHINERY CORPORATION
New York City

Booth No. 21 Texas Building

Exhibit: Exhibit consist largely of moving pictures of field operations together with literature, etc. No mhchinery will be exhibited.

Representatives: Waldo Sheldon, president; J. E. Burden, vice president; L. H. Buttenheim, vice president; Allen P. Berry, Mid-Continent representative; J. C. Fortune, Pacific Coast and Canada representative; Kirk Cornell, Earle R. Evans, Geo. V. Hogan, S. P. Borden.

SHELL PETROLEUM CORPORATION
Tulsa, Okla.

Booths Nos. 8-9 Oklahoma Building

THE SHERWIN-WILLIAMS COMPANY
Tulsa, Okla.

Booths Nos. 53-54 Oklahoma Building

Exhibit: Sherwin-Williams Kromik Primer, the original Lead Chromate base metal protective primer; Sherwin-Williams Petro-Seal, an oil-proof, gasoline-proof, elastic coating for tank seams and tank interiors; Sherwin-Williams Lyne-Kote, hot and cold application pipe line coating, and other paint, varnish and enamel finishes for the petroleum industry.

Representatives: W. F. Adams, Tulsa; A. W. Everett, Tulsa; J. Yerby, Dallas, Texas; L. J. Craig, Dallas, Texas; C. Sebert, Oklahoma City; E. J. Wilson, Dallas, Texas; J. W. Sullivan, Fort Worth, Texas; W. P. Clark, Kansas City, Mo.; H. W. Hull, Kansas City, Mo.; K. B. Keyerleber, Cleveland, Ohio.

SILENT HOIST & WINCH COMPANY
Brooklyn, New York

(See Leland Equipment Company)

SIVYER STEEL CASTING COMPANY
Milwaukee, Wis.

Booths Nos. 6-7 Texas Building

Exhibit: Alloy Steel and Malleable Castings; Technical Laboratory Charts, etc.

Representatives: Lamar S. Peregoy, vice president and general manager; Martin A. Fladoes, sales manager; Arthur H. Oberndorfer, advertising manager; Chas. A. Fischer, district representative; Myron R. Dawley, sales engineer; W. J. MacNeill; Kurt Siemens, sales manager.

SKELLY OIL COMPANY
Tulsa, Okla.

Booths Nos. 91-92-119-120 Oklahoma Building

THE SMALLAMATIC CO.
Tulsa, Okla.

Space D, Outside

Exhibit: An actual demonstration of an automatically controlled flowing oil well.

Representatives: C. I. Layton, G. B. Small, J. B Charles, W. E. Edwards, R. A. Bonnell, T. A. Hall.

A. O. SMITH CORPORATION
Tulsa, Okla.

Booths Nos. 113-114-115-116-117 Texas Building

Exhibit: Gas and Oil Line Pipe, Expansion Joints, etc., "Smithwelded"; also on track outside, "Smithwelded" Cracking Still Vessel.

Representatives: C. C. Joys, Jr., general sales manager; B. F. Bart, assistant general sales manager; W. V. C. Jackson, district sales manager (Tulsa); A. E. Butts, assistant district sales manager (Tulsa); Raymond Redden, district sales manager, Houston; also numerous factory representatives.

SMITH-MILLIGAN ELECTRIC CO.
Tulsa, Okla.

Booth No. 13 Texas Building

Exhibit: Sprucolite Motor Pulleys, both grooved for Vee Belts and regular for Flat Belts, by American Pulley Co., Philadelphia, Pa.; Gilmer Moulded Vee Belts for Vee Belt Drives, by L. H. Gilmer Co., Philadelphia, Pa.; Smith-Milligan Electric Co., will have on display various motor repair jobs, rewound armatures and coils, formators and armatures.

Representatives: E. R. Kleinlein, for American Pulley Co.; A. D. Quinn, for L. H. Gilmer Co.; C. G. Smith, for Smith-Milligan Electric Co.; J. A. Milligan, for Smith-Milligan Electric Co.

SMITH SEPARATOR COMPANY
Tulsa, Okla.

Booths Nos. 88, 89, 90, 121, 122, 123 Texas Building

Exhibit: Smith Oil and Gas Separators; The Ever Ready Protector; Waters Water Gauge Cock; Fisher Automatic Regulating Specialties; Victaulic Leak-Proof Pipe Couplings; Reed Air Filters.

T. L. SMITH COMPANY
Milwaukee, Wis.

(See Leland Equipment Company)

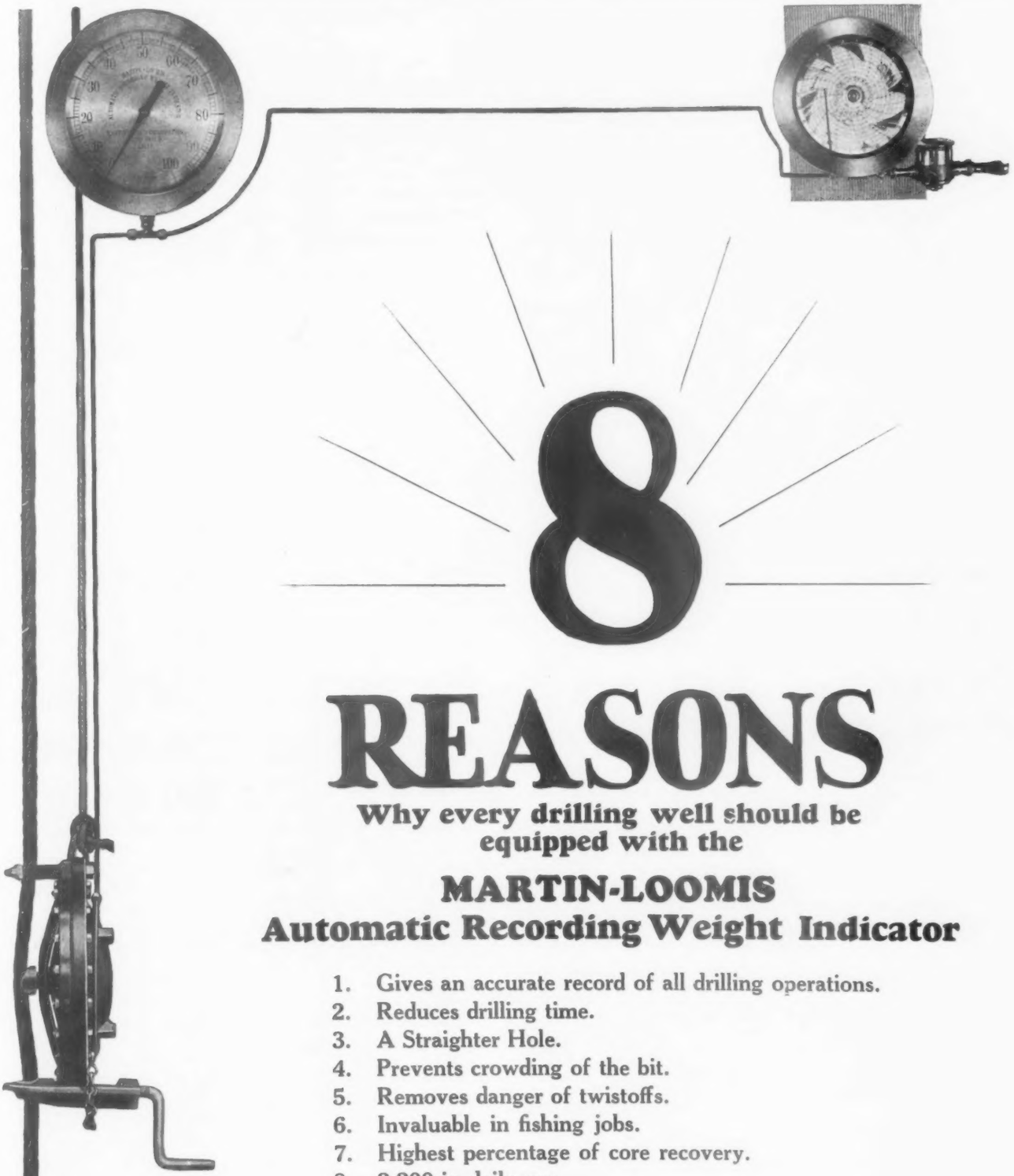
SONNER BURNER COMPANY
Winfield, Kans.

Booth No. 120 Texas Building

Exhibit: Pefecto Low Pressure Gas Burners, and Hy-Power and Radiant Cross Burners.

Representatives: P. J. Sonner, president; V. S. Beck, vice president; M. A. Bangs, secretary-treasurer; E. L. Barlow, combustion engineer; J. S. Fuller, sales engineer;

MARTIN-LOOMIS AUTOMATIC RECORDING WEIGHT INDICATOR



8 REASONS

Why every drilling well should be equipped with the

MARTIN-LOOMIS
Automatic Recording Weight Indicator

1. Gives an accurate record of all drilling operations.
2. Reduces drilling time.
3. A Straighter Hole.
4. Prevents crowding of the bit.
5. Removes danger of twistoffs.
6. Invaluable in fishing jobs.
7. Highest percentage of core recovery.
8. 2,200 in daily use.

MARTIN-LOOMIS CORPORATION

Mid-Continent Distributors
Reed Roller Bit Company
Houston, Texas

2827 Cherry Ave.
LONG BEACH
CALIFORNIA

Foreign Distributors
Oil Well Supply Company
Pittsburgh, Pa.

WEIGHT RECORDING, MEASUREMENT AND CONTROL

Newton Barrett, salesman; H. M. Foss, salesman; Max V. Stocking, salesman.

SOOTLESS SPARKPLUG COMPANY
(See Magneto Ignition Corporation)

SOUTHERN MILL & MFG. CO.
Tulsa, Okla.

Booth No. 30 Oklahoma Building
Exhibit: "Sturdibilt" Sectional lease houses.
Representatives: Walter H. Ahrens and Carl H. Ahrens.

SOUTHERN PINE ASSOCIATION
New Orleans, La.

Booth 22 x 22 feet, Open Air

SOUTHWESTERN ENGINEERING CORP.
Tulsa, Okla.

Booth No. 87 Texas Building
Exhibit: Southwestern Exchangers and Condensers; Atmospheric Type Coolers and Condensers.
Representatives: T. B. Leech, W. F. Statham, L. H. Badger.

SPANG, CHALFANT & CO., INC.
Pittsburgh, Penna.

Booth No. 48 Texas Building
Exhibit: Drill Pipe—One sample each of regular and heat-treated drill pipe will be shown which have been run to destruction in a full size fatigue machine. To illustrate the way in which this fatigue machine operates we will have set up a small one as per the diagram in the attached bulletin on our "Standard Seamless Heat-Treated Drill Pipe." Casing—To illustrate our seamless A. P. I. Grade C casing and our new Simancro alloy seamless casing, two short joints will be on display. These samples have been parted from their couplings in a pulling test machine and the actual parting load will be shown on placards attached.
Representatives: T. L. Kirk, assistant general manager of sales, Pittsburgh, Penna.; L. L. Minor, Jr., assistant general manager of sales, Pittsburgh, Penna.; J. D. Hardcastle, manager of sales, St. Louis, Mo.; F. Chas. Shugart, field representative, Sweetwater, Texas; F. Hoving, research engineer, Houston, Texas; E. B. Perkins, field representative, Tulsa, Okla.; H. G. Texter, sales engineer, Tulsa, Okla.

SPARTAN AIRCRAFT COMPANY
Tulsa, Okla.

Center of font Arcade
Exhibit: Spartan C-3-165.
Representatives: L. V. Kerber, president; Rex B. Beisel, vice president; S. L. Willits, vice president; L. R. Dooley, sales manager; J. Baxte Gardner, advertising manager.

SPECIALTY OIL TOOL COMPANY
Los Angeles, Calif.

Booth No. 78 Oklahoma Building
(See E. B. Wiggins Oil Tool Company)

SPENCER TRAILER COMPANY
Augusta, Kans.

(See Leland Equipment Company)

SPLITDORF ELECTRICAL COMPANY
(See Magneto Ignition Corporation)

SPRUCOLITE CORPORATION
Booth No. 13 Texas Building
(See Smith-Milligan Electric Company)

STANDARD STEEL WORKS
North Kansas City, Mo.

Booth No. 687 Arcade Building
Exhibit: Tar Kettles; Truck Tank; Semi-Trailer Tank; Aviation Truck Tank.
Representatives: W. B. Punton, J. C. Culver, E. E. Roll, G. P. Scott.

THE STAR DRILLING MACHINE COMPANY
Akron, Ohio

Outdoor Exhibit Space
Exhibit: No. 45ST Heavy Duty Spudder with 90 H.P. engine and shear pole equipment; TXO-J7 100 H.P. Drilling Engine; No. 14 Electric Forge Blower; No. 14 Gas Powered Forge Blower.
Representatives: L. W. Breyfogle, general manager, Akron, Ohio; F. L. Breyfogle, manager, Chanute, Kans.; C. Ahlers, sales manager, Chanute; B. C. Kiplinger, superintendent, Chanute; A. W. Johnson, salesman, Chanute; J. DeFrieze, salesman, Chanute; W. C. McKinstry, service, Chanute.

STAYNEW FILTER CORPORATION
Rochester, New York

(See Leland Equipment Company)

STEFCO STEEL COMPANY
Michigan City, Ind.

Booth No. 63 Oklahoma Building
Exhibit: Small Stefco standard all-steel building, such as used in the oil fields, equipped with airplane hangar type doors; adaptability of Stefco standard buildings for airplane hangar purposes.
Representatives: N. A. Leist, L. L. Dresser.

STEVENS, WALDEN WORCESTER, INC.
Worcester, Mass.

Booth 15 x 20 feet, Lot C

STITT IGNITION COMPANY
(See Magneto Ignition Corporation)

STOCKHAM PIPE & FITTINGS COMPANY
Birmingham, Ala.

Booths Nos. 106-107 Texas Building
Exhibit: Stockham Fantz-Type Return Bend; Stockham Fittings Cast Iron, Malleable and Cast Steel.
Representatives: H. C. Stockham, D. W. Stockham, R. L. Stewart, M. B. Crowe, W. G. Winburn, C. H. Denicke, J. E. Getzen, N. S. Cass.

STOODY COMPANY
Whittier, Calif.

Booths Nos. 43-44-45 Texas Building
Exhibit: Borium (diamond substitute); Stoodite; Stoody Self-hardening Rod; Stoody Portable Grinder; Stoody Bench and Aerial Combination Grinder; Stoody Electrode Holders; High Carbon Welding Rod; Stoody Positive Electrode.
Representatives: R. L. Ozais, advertising manager; J. C. Blake, general sales manager; J. P. Sievers, treasurer; E. L. Mathy, D. F. McCandlish, R. L. Adams, A. S. Heasley, Chas. Harter.

THE SULLIVAN COMPANY OF OKLAHOMA
Tulsa, Okla.

THE SULLIVAN COMPANY
Memphis, Tenn.

OILFIELD EQUIPMENT COMPANY, INC.
New York City
Export Distributors of Sulco Products

Booth No. 70 Texas Building

The Sullivan Company, Memphis, are manufacturers of the following products and the Sullivan Co. of Oklahoma and Oilfield Equipment Company, Inc., are distributors.

Exhibit: Konset— 1. Accelerates the set of cement. 2. Increases the earl yand final strength. 3. Makes Portland cement waterproof, oilproof and acid proof. 4. Sets cement in oil, gas, salt or acid water. 5. Forms a permanent bond to the casing and anchors in the strata. Kleenawell—Removes Paraffine and Asphaltum, cleans Tubing and Rods, Slush Mix; the Improved Mud heavier and Lubricator, Liquid Paste and Powder Acitite. An Acid Proof Paint and Cement that resists all acids and gas fumes, for pipe lines, tank linings, bottoms, etc., and other Sulco Oil Field Products.
Representatives: J. W. Salles, Tulsa, Okla.; F. Daly Sullivan, Memphis, Tenn.; D. P. Estridge, Memphis, Tenn.; E. A. Adkison, Tulsa; Mr. Ward, New York City.

SULLIVAN MACHINERY COMPANY
Chicago, Ill.

Open Space 15 x 30 feet, Open Air
Exhibit: Sullivan Core Drills (a full display); Type 21 gasoline engine driven machine; Type 40 which will take either 1⅛-in. and 2-in core.
Representatives: George E. Failing, state agent for Kansas and Oklahoma; Morris C. Allen, manager, Diamond Drill

"STURDYBILT" SECTIONAL HOUSES

Save Money for the Oil Industry with an Actual 100 Per Cent Salvage Value

"STURDYBILT" SECTIONAL HOUSES are a realization of the Oil Industry's need for substantial housing facilities at low cost of initial construction and high salvage value.

"STURDYBILT" SECTIONAL HOUSES, adaptable to the peculiar needs of the Oil Industry for oil field lease, pipe line station or refinery use, are designed to afford the utmost in housing accommodations as well as low initial cost, quick construction and 100 PER CENT SALVAGE VALUE.

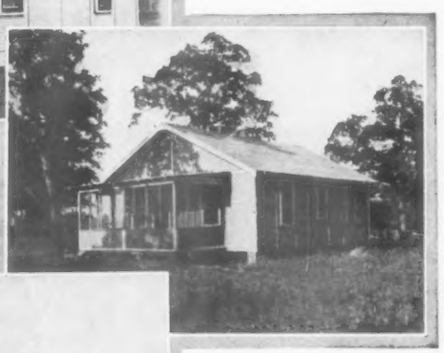
No. 413. Five-room "Sturdybilt" residence

No. 304. A "Sturdybilt" field office

No. 502. Five-room "Sturdybilt" lease house

Right—No. 504. Six-room "Sturdybilt" residence

Left—No. 202. Two-room "Sturdybilt" lease office



No. 411. Four-room "Sturdybilt" lease house with screened porch

No. 801. "Sturdybilt" bunk house and dining hall

No. 51. "Sturdybilt" two-car garage

It is conservatively estimated that in the Mid-Continent field alone the Oil Industry has a "dead" investment of well over a Million Dollars in standard constructed houses which could have been reclaimed had "STURDYBILT" SECTIONAL HOUSES been used instead.

For Seven Years "STURDYBILT" SECTIONAL HOUSES have been the leader in section-built houses for Oil Industry usage . . . their comparative value will endure over all other specifications with their actual 100 PER CENT SALVAGE VALUE against the low or absolute lack of salvage value of other types of oil field housing construction.

Descriptive Booklet on Request

SOUTHERN MILL & MFG. CO.

Manufacturers of "Sturdybilt" Sectional Houses

TULSA, OKLAHOMA

division, Chicago; Don M. Sutor, district sales manager, St. Louis.

SUN OIL COMPANY
Tulsa, Okla.

Booths Nos. 6-7 Oklahoma Building

C. J. TAGLIABUE MFG. CO.
Brooklyn, N. Y.

Booth Nos. 30-31 Scientific & Technical Building

Exhibit: Complete line of Laboratory and Plant Instruments for Oil Refineries such as Thermometers, Hydrometers and Standard Oil Testing Instruments for the Laboratory, Industrial Thermometers with the TAG-Hespe Feature, Recording and Indicating Thermometers with a line of Temperature, Pressure and Humidity Controllers for the Plant. Also attractive panels with instruments mounted on them, and a stand centrally located upon which will be placed a group of the Standard Oil Testing Instruments.

Representatives: Mr. R. M. Wilhelm, sales engineer; Mr. C. L. Huffman, sales engineer; Mr. A. G. Koenig, sales engineer.

TAYLOR FORGE & PIPE WORKS
Chicago, Illinois.

Booth No. 64 Oklahoma Building

Exhibit: Taylor Spiral Riveted Pressure Pipe. Hammer Lap Welded Steel Pipe. Taylor Seamless FORGED STEEL Boiler Nozzles. FORGED STEEL Flanges and Rings.

Representative: Mr. S. L. Barber.

TAYLOR INSTRUMENT COMPANIES
Rochester, N. Y.

Booth Nos. 33-34 Scientific & Technical Building

Exhibit: Scientific and Technical Instruments.

Representatives: E. H. Triphaus, Tulsa, Okla.; L. G. Marsh, Rochester, N. Y.; A. J. Fleig, Rochester, N. Y.; E. C. Taylor, Pittsburgh, Pa.; D. R. Davis, Tulsa, Okla.; H. A. Brown, Tulsa, Okla.

TEMPLETON, KENLY & CO., LTD.
Chicago, Illinois.

Booth No. 42 Texas Building

Exhibit: Simplex Lifting Jacks, Simplex Screw Jacks, Simplex Pipe Pushing Jacks, Simplex Truck Jacks.

Representatives: Mr. H. B. Burlow, vice-president.

TERRY STEAM TURBINE COMPANY
Hartford, Connecticut.

(See Worthington Pump & Machinery Corp.)

TETAMIN PIGMENT COMPANY

(See National Lead Company)

THE TEXAS COMPANY
Houston, Texas.

Booth Nos. 16-17 Oklahoma Building

THE TEXAS COMPANY OF TULSA
Tulsa, Oklahoma.

Booth Nos. 16-17 Oklahoma Building

(See The Texas Company)

TIMKEN ROLLER BEARING COMPANY
Canton, Ohio.

Booth Nos. 72-73 Texas Building

Exhibit: Selection of bearings suitable for use in oil field equipment.

Representatives: L. M. Klinedinst, H. I. Barth, G. W. Curtis, J. A. Robinson, H. D. Robb R P. Profitt.

TIM'S ALUMINUM FOUNDRY
Kansas City, Mo.

(See Howell Valve Works)

THE TITUSVILLE IRON WORKS COMPANY
Titusville, Pennsylvania

Booth No. 126 Texas Building

Exhibits: (Literature on products only).

Representatives: Mr. B. F. Kelley, Tulsa, Oklahoma; Mr. J. T. Dillon, Sr. of Buffalo, president; Mr. J. T. Dillon, Jr. of Titusville, vice-president; Mr. R. E. Dillon of Buffalo, vice-president.

TRANSCONTINENTAL OIL COMPANY
Tulsa, Oklahoma.

Booth Nos. 22-23 Oklahoma Building

TRIMONT MFG. COMPANY, INC.
Roxbury (Boston), Mass.

Booth No. 100 Oklahoma Building

L. E. TROUT & COMPANY
Wichita Falls, Texas.

Booth No. 46 Oklahoma Building

TUBE-TURNS, INC.
Louisville, Kentucky

Booth No. 43 Scientific Building

(See the Moorlane Company.)

TULSA BOILER & MACHINERY COMPANY
Tulsa, Oklahoma.

Booth No. Block "L"

Exhibits: Gasoline Plant Equipment.

Representatives: Mr. J. E. Carnahan, Mr. Roy Carnahan, Mr. M. H. Kotzebue, Mr. R. M. Jones, Mr. S. L. Spence, Mr. J. M. McReynolds, Mr. D. E. Fields, Mr. S. H. Morris.

TULSA CANVAS PRODUCTS CO.,
Tulsa, Oklahoma.

Booth No. 10′ x 15′ Lot H

TULSA ROLLING MILLS CO.,
Tulsa, Oklahoma.

Part of Block H, Outside

Exhibit: 1—Raw Materials and other ingredients that are used in producing steel; 2—specimens of products, including Ingots, Billets, Bars, etc.

Representatives: H. B. Bevan, manager of sales; H. C. Doerner, Tulsa representative.

THE TURBO-MIXER CORPORATION
New York, N. Y.

10′ x 10′ Open Air

Exhibit: Turbo-Mixer.

Representatives: Mr. K. S. Valentine; Mr. Gordon MacLean.

TWIN DISC CLUTCH CO.,
Racine, Wisconsin.

Booth No. 51 Texas Building

Exhibit: 1—42″ Clutch; 1—24″ Stub Shaft Mounting Clutch with Gear Tooth Drive; 1—18″ Clutch designed to overcome centrifugal action; 1—18″ Power Takeoff Unit.

Representatives: P. H. Batten, president; G. M. Guilbert, sales manager and secretary (Tulsa Exchange); J. B. Jenkins, sales engineer; W. C. Sewalt, vice-president.

UNION CARBIDE COMPANY

(See Linde Air Products Co.)

UNION WIRE ROPE CORPORATION,
Tulsa, Oklahoma.

Booths Nos. 56-57-58 Texas Building

Exhibit: Wire and Wire Rope.

Representatives: R. H. Bartlett, president; H. R. Gruber, vice-president; M. G. Ensinger, vice-president; J. H. Hatch, treasurer; F. A. Donaldson, Eastern representative; J. A. Undercofler, Oklahoma representative; H. E. Frye, Kansas representative; H. G. Alston, East Central Texas representative; R. I. Watkins, West Texas representative.

U. S. L. ELECTRIC WELDERS,
Niagara Falls, N. Y.

(See Welders Supply Company)

VICKERS MACHINE WORKS,
Smackover, Arkansas.

Lot A, Open Air.

(See Clark Brothers Company)

VICTAULIC COMPANY OF AMERICA,
New York, N. Y.

Booths Nos. 121-122 Texas Building

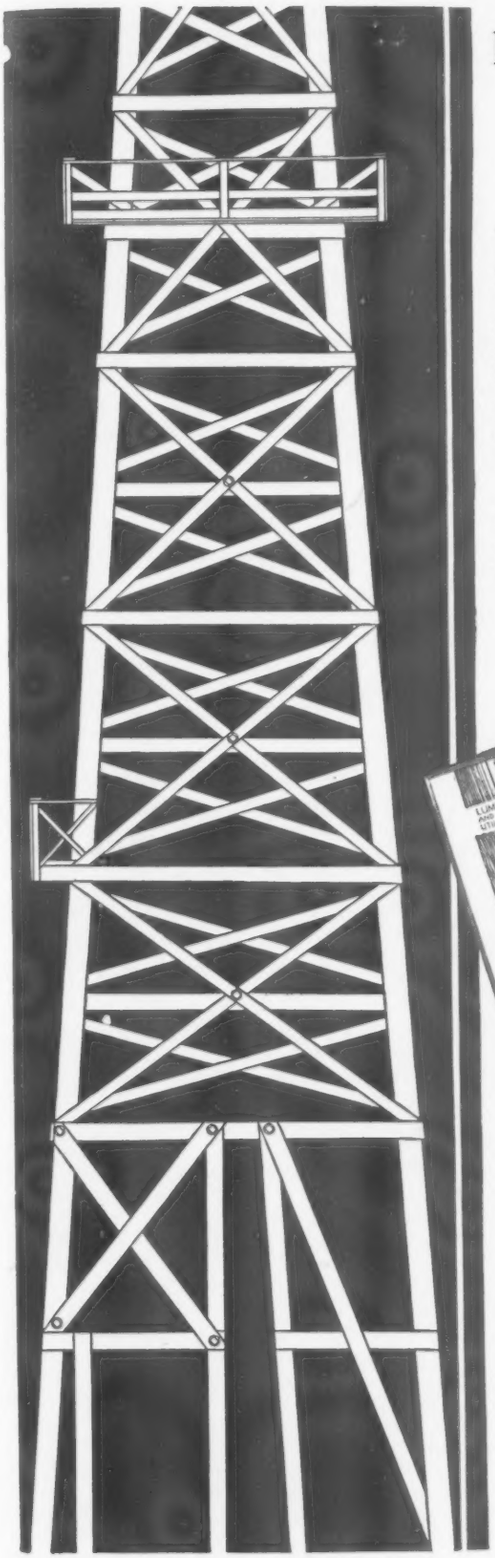
Exhibit: Victaulic Leak-Proof Flexible Pipe Couplings.

Representatives: Mr. W. B. Damsel, vice-president and general manager; Mr. J. E. B. Gibbons, in charge of sales.

VICTOR WELDING EQUIPMENT CO.,
San Francisco, California.

Booths Nos. 43-44-45 Texas Building

Exhibits: A complete line of Victor Welding Torches, Cutting Attachments, Cutting Torches, Victor Safety Regulators, Oxygen Manifolds and special Cutting and Welding devices will be displayed. All of our company's equipment which is on display will be used in actual welding and cutting operations. We shall feature the Victor Pipe



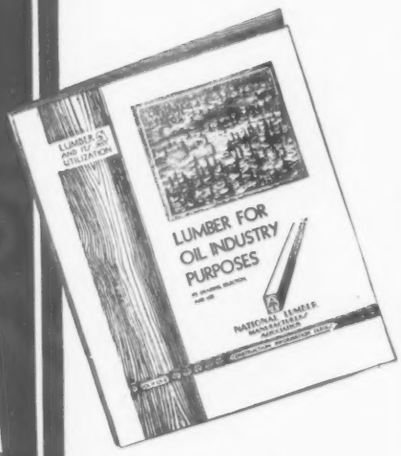
HERE ARE FACTS THAT WILL HELP YOU USE LUMBER MORE EFFECTIVELY

FOR two years they traveled the oil fields, our lumber experts. Watched and listened and asked questions. Superintended the construction of new derricks. Examined the service records of old ones. Made tests to determine the safe working strength of derricks. Oil men willingly coöperated.

The result is a handbook hard to beat. A practical guide crammed with facts on the use of lumber in the oil industry.

Model working plans for all types of wood construction peculiar to the oil industry . . . Standard recommendations for grades and species best adapted to the oil man's requirements . . . What to specify for derricks, light field buildings, heavy warehouses, bridges, piers, wharves, hangars...

Visit Booth 28 at Tulsa and get a copy of "Lumber for Oil Industry Purposes". While you're there examine the model derrick and get your free set of derrick plans —or use the coupon below.



This Practical Handbook FREE!

The "Tree-Mark" stamped on a piece of lumber is your guarantee that the quality indicated thereon by the marks of the expert grader is correct.

NATIONAL LUMBER MANUFACTURERS ASSOCIATION
Washington, D. C.

Offices in
New York · Boston · Pittsburgh · Indianapolis
Chicago · Minneapolis · Kansas City
Memphis · New Orleans · San Francisco

Two years of research built this model derrick!

SEE IT AT BOOTH 28

At left is shown a model derrick developed after two years of field research. The construction practices which it demonstrates have led many engineers to declare it the most economical and practical of derrick designs. See if you don't agree with them. Visit Booth 28 at Tulsa, or mail the coupon for booklet and blueprints.

National Lumber Manufacturers Association
Dept. OW-1 Transportation Bldg., Washington, D. C.

Gentlemen: Please send me free—

Check ☐ "Lumber for Oil Industry Purposes"
☐ Blueprints of Model Derrick

Name_____

Street_____

City_____ State_____

THESE 18 great associations affiliated with the National Association maintain particular information and service organizations that coördinate with the general services of the National staff.

†California Redwood Association, San Francisco, Calif.—Redwood

*California White & Sugar Pine Manufacturers Association, San Francisco, Calif.—California Pines, White Fir

Hardwood Manufacturers Institute, Memphis, Tenn.—Oak, Gum,* Tennessee Aromatic Red Cedar, Southern and Appalachian Hardwoods

*North Carolina Pine Association, Norfolk, Va.—North Carolina Pine

*Northern Hemlock & Hardwood Manufacturers Association, Oshkosh, Wis.—Hemlock, Maple, Birch and Northern Hardwoods

*Northern Pine Manufacturers Association, Minneapolis, Minn.—White Pine, Norway Pine

*Southern Cypress Manufacturers Association, Jacksonville, Fla.—Cypress and Tupelo

*Southern Pine Association, New Orleans, La.—Long Leaf and Short Leaf Southern Yellow Pine

*West Coast Lumbermen's Association, Seattle, Wash.—Douglas Fir, Sitka Spruce, West Coast Hemlock, Western Red Cedar

†Western Pine Manufacturers Association, Portland Ore.—Pondosa Pine, Idaho White Pine, Larch

National American Wholesale Lumber Association, New York, N. Y.

National Association of Wooden Box Manufacturers, Chicago, Ill.

*Maple Flooring Manufacturers Association, Chicago, Ill.

British Columbia Lumber and Shingle Manufacturers, Ltd., Vancouver, B. C.

British Columbia Loggers Association, Vancouver, B. C.

American Wood Preservers' Association, Chicago, Ill.

*Oak Flooring Manufacturers Association of the United States, Chicago, Ill.

Red Cedar Shingle Bureau, Seattle, Wash.

*Grade- and trade-marked lumber available in these species †Trade-marked lumber available in these species

Line Welding and Cutting Units which have been used in conjunction with Pipe Line construction, by many of the largest Oil companies and Pipe Line contractors, for over 16 years.

Representatives: Mr. E. L. Mathy, vice-president, and Mr. A. S. Heasley, assistant to the vice-president.

VIKING PUMP COMPANY,
Cedar Falls, Iowa.

(See Walter O'Bannon Company).

VINSON-CANTER COMPANY,
Tulsa, Oklahoma.

Booth No. 55 Oklahoma Building

HENRY VOGT MACHINE COMPANY
(See Whealton & Townsend, Inc.)

VOLZ ENGINEERING COMPANY
(See W-K-M Company, Inc.)

THE VULROX COMPANY,
St. Louis, Mo.

15′ x 20′ Open Air

Exhibit:. Synthetic Rubber Protective Coatings in liquid and sheet forms, cold wrapped pipe, miniature storage tank, model service stations with buried tank, electrolytic corrosion demonstration, chemical corrosion demonstration, Hydrogen-Sulphide Corrosion demonstration, Souvenirs of Vulrox, etc.

Representatives: Mr. C. Norman Jones, president, St. Louis; Mr. Paul Brunberg, vice-president and general manager, St. Louis; Mr. Robert Burnett, manager Petroleum Industries Div., Tulsa, Okla.; Mr. Wm. Wood; Mr. J. W. Tomlinson; Mr. R. F. Paden; Mr. G. A. Gage.

WAILES DOVE HERMISTON CORPORATION,
Tulsa, Oklahoma.

Booths Nos. 83 and 128 Texas Building

Exhibit: Bitumastic Enamel, our hot coating for Pipe Lines, and our other Bitumastic products.

Representatives: C. W. Cotton, W. H. T. Thornhill, S. W. Wells, A. Desautels, T. R. Cash.

WALWORTH COMPANY,
Boston, Massachusetts.

Booths Nos. 104-105-106-107 Oklahoma Building

Exhibit: Valves.

Representatives: J. E. Aderhold, Jr., C. L. Bradbury, W. M. Combs, Howard Coonley, Jr., F. W. Duemler, W. C. Goza, M. C. Jacobs, W. J. Lewis, T. G. Smith, R. T. Tierney, W. H. Weber, L. B. Wedge, W. C. Mattox, Adv. Mgr.

W-K-M COMPANY, INC.,
Houston, Texas.

60′ x 70′ Open Air.

WAUKESHA MOTOR CO.,
Waukesha, Wisconsin.

Booths Nos. 89-90-121-122 Oklahoma Building

Exhibit: Great Six 275 Horsepower Rotary Drilling Engine in operation; Portable 70 Horsepower cable tool drilling unit demonstrated; Big Six 120 Horsepower portable power unit; Big Four 120 Horsepower stationary power unit with reduction gear.

Representatives: H. L. Horning, president; J. B. Fisher, chief engineer; J. E. DeLong, manager Oil Field Equipment Division; H. Wirshing, Oil Field sales engnieer; M. E. Nicklin, Oil Field sales engineer; P. C. Ritchie, advertising manager.

WEBER INSULATIONS, INC.,
East Chicago, Indiana.

Open Air space.

(See Clark Bros. Company)

WELDERS SUPPLY COMPANY,
Tulsa, Oklahoma.

Booths Nos. 93-94 Texas Building

Representatives: Mr. A. J. Fausek, president, Modern Eng. Co., St. Louis; Mr. E. L. Mathey, president, Victor Welding Co., San Francisco, Calif.; Mr. C. Blake, sales manager, Stoody Company, Whittier, Calif.; Mr. C. W. Rambo, manager, Welders Supply Company, Houston, Texas; Mr. C. A. Warner, sales manager, Welders Supply Co., Shreveport, La.; Mr. H. L. Street, salesman, Welders Supply Co., Dallas, Texas; Mr. W. L. Porter, manager, Welders Supply Co., Dallas, Texas; Mr. H. H. Norton, salesman, Welders Supply Co., Tulsa, Oklahoma; Mr. S. K. Bush, salesman, Welders Supply Co., Tulsa, Oklahoma; E. W. Hanna, salesman, Welders Supply Co., Tulsa, Oklahoma; Mr. C. B. Harter, manager, Welders Supply Co., Tulsa, Oklahoma.

WELDING ENGINEER,
Chicago, Illinois.

10′ x 10′ Open Air.

WELDING ENGINEERING COMPANY,
Bartlesville, Oklahoma

Open Air Space.

(See Lincoln Electric Company)

WERTZBERGER DERRICK COMPANY
Tulsa, Oklahoma

Outside Space.

Exhibit: 122′ Standard Seamless Tube 40-50 Carbon Steel legs, Angle Iron Braces and Girts, Starting Legs 27.5 lb. Common Legs 23.02 lbs. with 12″ 60-lb. I-Beam Headers, Rotary Derrick; 94′ Combination Rotary and Standard Derrick with 24′ Base and same specifications as the 122′ Rotary Derrick; Fraser Pipe Front.

Representatives: D. D. Wertzberger, D. F. McCarty, H. H. Fortney.

WESTCO CHIPPEWA PUMP COMPANY
(See Federal Steam Specialties Co.)

WESTCOTT AND GREIS, INC.
Tulsa, Oklahoma

Booths Nos. 39-40-55-56 Scientific & Technical Building

Exhibits: Metric Ironcase Meters; Westcott Orifice Meters; Chaplin-Fulton Gas Regulators; Davis Vacuum Regulators; Crosby Gages and Valves; Meriam Manometers; Westcott & Greis Universal Vent Valves; Robinson Orifice Fittings.

Representatives: F. J. Hart, sales and service, Metric Metal Works; J. C. Diehl, chief engineer, American Meter Co.; J. H. Satterwhite, manager, Westcott & Greis, Inc.; F. I. Thompson, sales and service, Westcott & Greis, Inc.; G. B. Smith, sales and service, Westcott & Greis, Inc.; W. E. O'Meilia, sales and service, Westcott & Greis, Inc.; H. W. Wahl, sales and service, Wetscott & Greis, Inc.; G. H. Unkefer, sales and service, Westcott & Greis, Inc.; J. J. Delaney, sales and service, Westcott & Greis, Inc.; C. C. Clover, sales and service, Westcott & Greis, Inc.; Geo. C. Davis, president, G. M. Davis Regulator Co.; Geo. F. Felker, vice-president, Crosby Steam Gage & Valve Co.; Thos. H. Thorn, sales and service, Chaplin Fulton Mfg. Co.

WESTINGHOUSE ELECTRIC & MFG. CO.
East Pittsburgh, Pennsylvania

Booths Nos. 85-86-125-126-127 Oklahoma Building

Exhibit: New Westinghouse "Weldomatic" 178222; A 200 Ampere Portable Gas Engine Driven Welder 172837; A Rig Lighting Transformer SH-739; A Westinghouse Chromilite Floodlight 37899; A 150 h.p. P-20402 Mechanical Drive Turbine and a 3 kw. P-19786; Light Sensitive Relays; A Westinghouse-Nuttall Reduceion Gear N-2724; 125 HP Open Type Rotary Drilling Controller 179423.

Representatives: J. P. Jordan, East Pittsburgh, sales department, in charge of the exhibit; W. W. Reddie, East Pittsburgh, sales, arc welding equipment; E. N. Fabrizio, East Pittsburgh, sales; R. Cronemeyer, East Pittsburgh, sales; E. E. Boone and O. P. Adams, Westinghouse-Nuttall sales department; G. H. Koch and H. E. Dralle, general engineers, East Pittsburgh; R. L. Crawshaw, engineer, Nuttall Works; D. H. Hunter, advertising department, East Pittsburgh, Pa.; H. R. Jones, salesman, Pittsburgh office; W. C. McGraw, salesman, Tulsa office; I. C. Porter, salesman, Oklahoma City office; Graham Ross, salesman, St. Louis office; R. A. Swindell, salesman, Tulsa office; A. H. Treadway, salesman, Dallas office; R. F. Riddle, salesman, Tulsa office; C. A. Doolin, salesman, Houston office; W. C. Dreyer, engineer, Dallas office.

WHEALTON & TOWNSEND, INC.
Tulsa, Oklahoma

Lot J

Exhibit: Vertical Gas Engines, Compressors, Rock Drills,

Experienced Service

to the Producing, Transporting and Refining

Departments of the Oil Industry

The Kirk-Morrow Iron Works Company, (formed to take over the Iola, Kansas, plant of The United Iron Works, Inc.) in its personnel and products brings to the oil industry twenty-five years experience in serving the branches of the business which produce, transport and refine oil. This service, under the name of The Kirk-Morrow Iron Works Company continues to deliver the satisfaction which has brought already a quarter century of success.

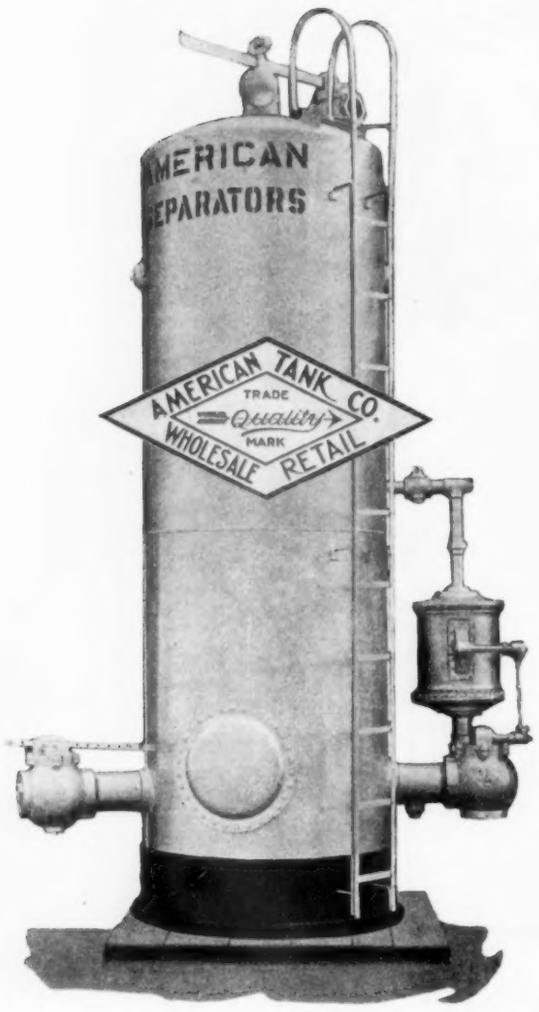
THE KIRK-MORROW IRON WORKS COMPANY

General Offices: IOLA, KANSAS

Sales Offices: Hunt Bldg., Tulsa, Oklahoma, Magnolia Bldg., Dallas, Texas, Central Bldg., Wichita, Kansas

fronting on Drake Avenue, just south of the big flag pole.

AMERICAN
OIL AND GAS
SEPARATORS



COMPLETE STOCKS

ELDORADO, ARK.	PAMPA, TEXAS
FRANCIS, OKLA.	PYOTE, TEXAS
SEMINOLE, OKLA.	McCAMEY, TEXAS
BORGER, TEXAS	BIG SPRING, TEXAS

"Complete Tank Service for the Oil Industry"

AMERICAN TANK COMPANY
OKLAHOMA CITY

SALES OFFICES
TULSA AND FORT WORTH

Pneumatic Drills, Electric Tools, Henry Vogt Machine Co. — Valves and Fittings.

Representatives: F. L. Cotterman, A. E. Goodhue, W. H. Callan, D. H. Mills, O. C. Estergreen, L. H. Hoffman, L. T. Pockman.

THE WHITE COMPANY
Cleveland, Ohio

Exhibit: White Model 59 SW-400, equipped with special auxiliary transmission and tower for driving Silent Hoist Co. Winch. This model is powered with a 100 horsepower engine. It is of 215-inch wheelbase with a gross rating of 40,000 pounds for the chassis. The unit was designed especially for heavy duty work in the field.

Representatives: Newell Lyon, district manager, Kansas City; H. L. Rasmussen, branch manager, Tulsa, Oklahoma; A. J. Scaife, field engineer, Cleveland; R. W. Knowls and Weltz Grey, transportation engineers, Cleveland.

WICO ELECTRIC COMPANY
West Springfield, Mass.

Booths Nos. 102-103 Oklahoma Building

Exhibit: Magnetos, 3 types, OC, B and EK.

Representatives: E. E. Hoffman, sales engineer; V. K. Hunt, service manager; Harry Lolley, supervisor of service (Tulsa branch); L. F. Smith, Tulsa branch manager; H. L. Stoughton, general sales manager.

WIEMAN-KAMMERER-WRIGHT, INC.
Hollydale, California

Booth No. 14 Texas Building

Exhibit: Model B-2 Drilling Bit; Model B-5 Drilling Reamer, the New Weiman-Kammerer-Wright Pipe Guide, the Weiman-Kammerer-Wright (formerly Varco) Rock Bit Cones; the new Model 5 Drilling Bit that was recently put on the market.

Representatives: Mr. J. C. Wright, president and general manager; Mr. Edgar Wilson, vice-president and sales manager.

E. B. WIGGINS OIL TOOL COMPANY, INC.
Los Angeles, California

Booth No. 78 Oklahoma Building

Exhibit Wiggins Rotary Reamers and Underreamers; Wiggins Rotary Hose Couplings; Wiggins Safety Hook Hobbles; Wiggins Rotary Disc Bits; Wiggins Collapsed Casing Expander.

Representatives: E. B. Wiggins, E. W. Bilger, J. B. Erickson.

SPECIALTY OIL TOOL COMPANY
Brea, California

Booth No. 78 Oklahoma Building

Exhibit: For Export — McClintic-Marshall Master Steel Drilling and Pumping Derrick; Ironite and Betonite (Aquagel). Fishing Tools — SOTOC Hydraulic Wall Hook; SOTCO Hydraulic Knuckle; SOTCO Plain Wall Hook; SOTCO Combination Trip Packoff Overshot; SOTCO Adjustable Grab; SOTCO Spiral Fishing Tool Guide. General — SOTCO Wigle Sucker Rod Hanger; SOTCO Wigle High and Low Pressure Heads; SOTCO Wigle Circulating Heads; SOTCO Derrick Safety Device; SOTCO Hydraulic Line Control; SOTCO Pilot Drilling Bits.

Representatives: R. J. Eicke, Elmer Pryor.

WILLAMETTE-ERSTED COMPANY
Portland, Oregon

15′ x 30′ Lot K

WILLIAMSPORT WIRE ROPE COMPANY
Tulsa, Oklahoma

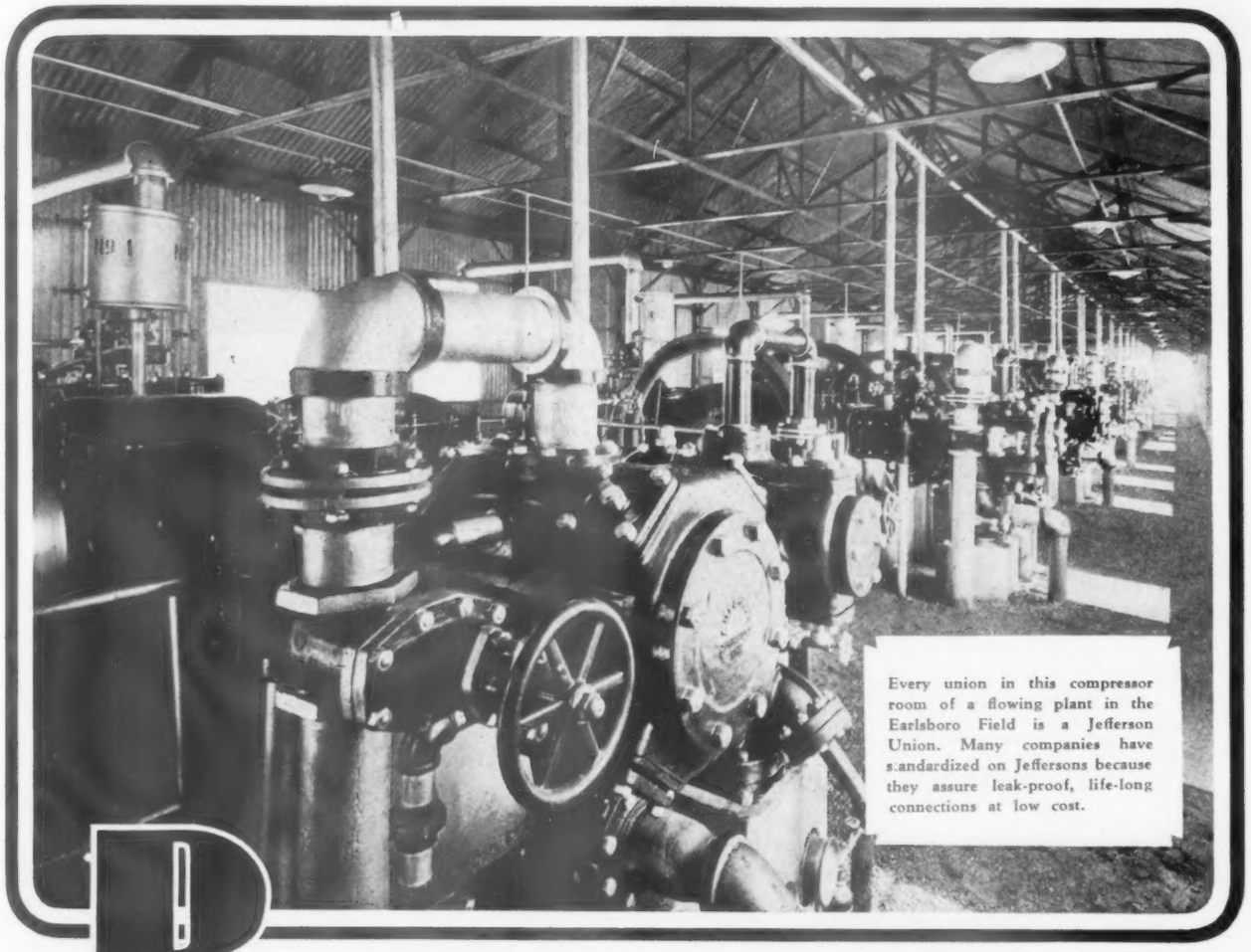
Booth No. 52 Scientific Building

WILLIAMS TOOL CORPORATION
Erie, Pennsylvania

Booths Nos. 26-27 Arcade Building

Exhibits: No. 12 Williams Rapiduction Pipe Threader; No.

JEFFERSON UNIONS



Every union in this compressor room of a flowing plant in the Earlsboro Field is a Jefferson Union. Many companies have standardized on Jeffersons because they assure leak-proof, life-long connections at low cost.

PERFECTLY MATED..
to oil field requirements

Jefferson Union's unique seating arrangement which eliminates wear and corrosion on the ring, prolongs the life of these unions in extremely corrosive conditions. Every Jefferson Union is mated exactly at the factory before shipment, insuring perfectly fitting, tight connections.

Write for literature describing Jefferson Unions and the specific services to which they are best adapted.

Distributed by

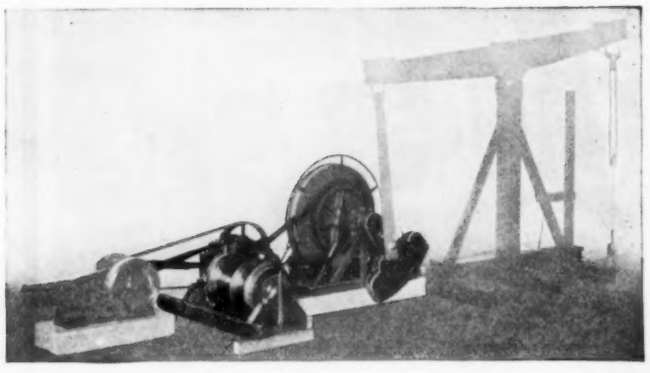
INTERNATIONAL Supply Company

TULSA *Branches in all Principal Fields* OKLAHOMA

OCS

UNIVERSAL RIG FRONTS

Request Bulletin 85

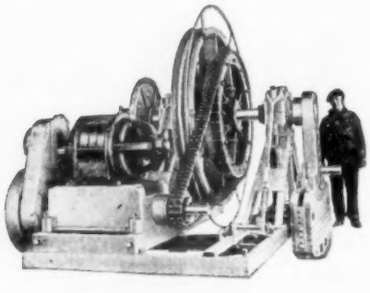


FOR

THE DEEPEST WELLS

IN THE WORLD

FOR GAS ENGINES



Or Electric Motors

THE OIL COUNTRY SPECIALTIES MFG. CO.

COFFEYVILLE, KANSAS

Hynes, California Sweetwater, Texas, Tulsa, Oklahoma

Seminole, Oklahoma Hillman Kelley, Inc., Los Angeles

106 Wilco, 1½" to 6" capacity; 2" Rapiduction Bolt Threader; Rapiduction Pipe Threader Die Head.

Representatives: E. P. Poole, H. Liehr, H. C. Gardner, P. Zuerl.

WILSON & BENNETT MFG. CO.

Chicago, Illinois

10′ x 15′ Open Air Space.

Exhibit: Cans and Drums — The Por-Pail; the Por-Can; 30-Gallon Grease Drum; 100-pound Grease Drum.

Representatives: Mr. H. F. LePan, Mr. P. Moran.

WILSON MANUFACTURING CO.

Wichita Falls, Texas

(See W-K-M Company, Inc.)

WILSON PRODUCTS, INC.

(See Bullard-Davis, Inc.)

WIRT FRANKLIN PETROLEUM CORPORATION

Ardmore, Oklahoma

10′ x 10′ Open Air Space.

Exhibits: A bronze Indian mounted on a five-foot triangular base and lighted up. This Indian is about seven feet tall from head to foot and is represented to be a friend of the motorist.

Representatives: Mr. Wirth Franklin, president; Mr. Walter Gant, vice-president; Mr. Frank M. Porter, vice-president; Mr. C. A. Franklin, general manager; Mr. Edward Galt, secretary; Mr. W. H. Gilbreath, manager marketing division.

WORKMAN SHEET METAL COMPANY

Tulsa, Oklahoma

10′ x 10′ Open Air Space.

WORTHINGTON MACHINERY CORPORATION OF OKLAHOMA

Tulsa, Oklahoma

Block L North of Oklahoma Building

Exhibit: 1—90 h. p. 3500 r.p.m. Terry Steam Turbine, direct connected to 3 Worthington Centrifugal Pumps; 1—8 x 10 Worthington Enclosed Frame Power Pump, mounted on steel skids and driven by 100 h.p. Hercules Gasoline Engine; 1—Worthington Vertical Air Compressor driven by Allis-Chalmers Electric Motor; 1—5 x 10 Worthington Enclosed Frame Power Pump, driven by 50 h.p. Allis-Chalmers Motor; 1—30,000-Barrel 3500 r.p.m. Worthington 3-Stage Oil Line Centrifugal Pump.

Representatives: H. D. Cornell, F. W. Dye, J. E. Duffey, J. A. Lupfer, J. H. Feemster, Jr., J. O. Lewis, Olaf la Cour Olsen, W. D. Smith, T. W. Rutherford, S. C. Ashcraft, R. M. Harley, Worthington Machinery Corporation of Oklahoma, Tulsa; T. Georg, Worthington Pump & Machinery Corporation, New York.

YOUNG ENGINE CORPORATION

Canton, Ohio

Booths Nos. 11-12 Arcade Building

Exhibit: Young Gas or Gasoline Drilling Engine; 2½ kw Electric Light Plant, direct connected to 7¼ h.p. four (4) cylinder water cooled gas and gasoline engine, for lighting the drilling rig; Orifice Gas Well Testers; Combination Natural Gas Mixing Valve with Gasoline Carburetor; Railroad or Highway Road Boring Machine.

Representatives: Mr. W. T. Young, president and general manager; Mr. H. A. Laurence, Mid-Continent representative.

YOUNGSTOWN SHEET AND TUBE COMPANY

Youngstown, Ohio

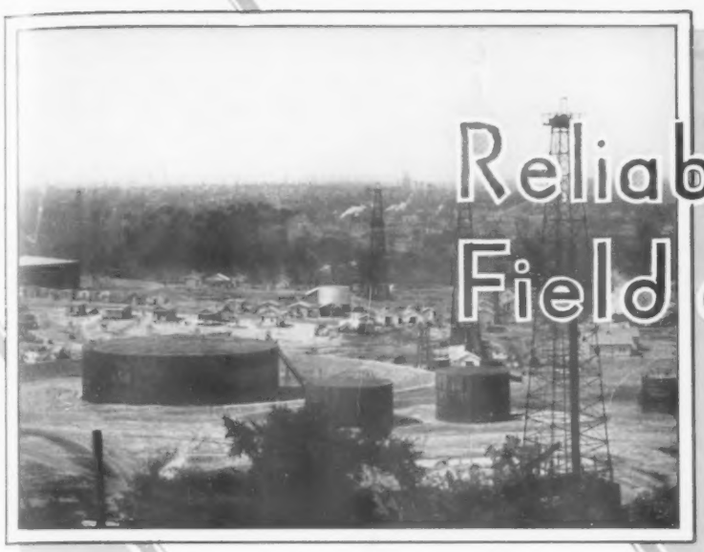
Open Air.

(See Continental Supply Company)

JOHN ZINK COMPANY

Tulsa, Oklahoma

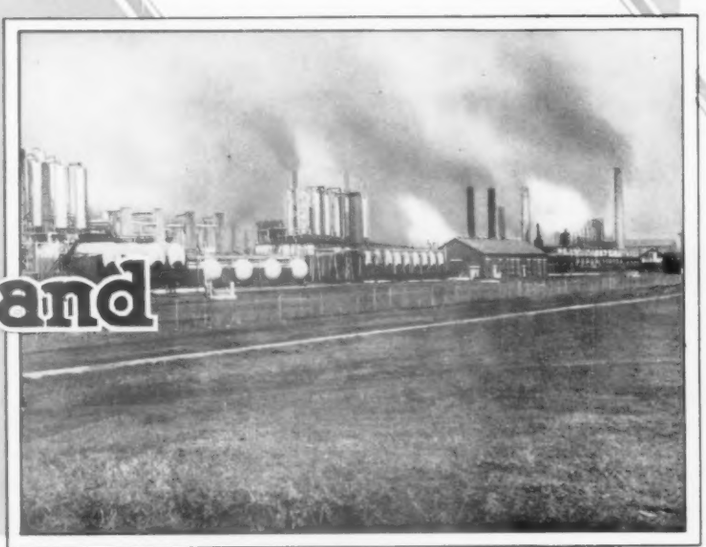
10′ x 10′ Open Air Space.



Reliable Equipment for Field and Refinery

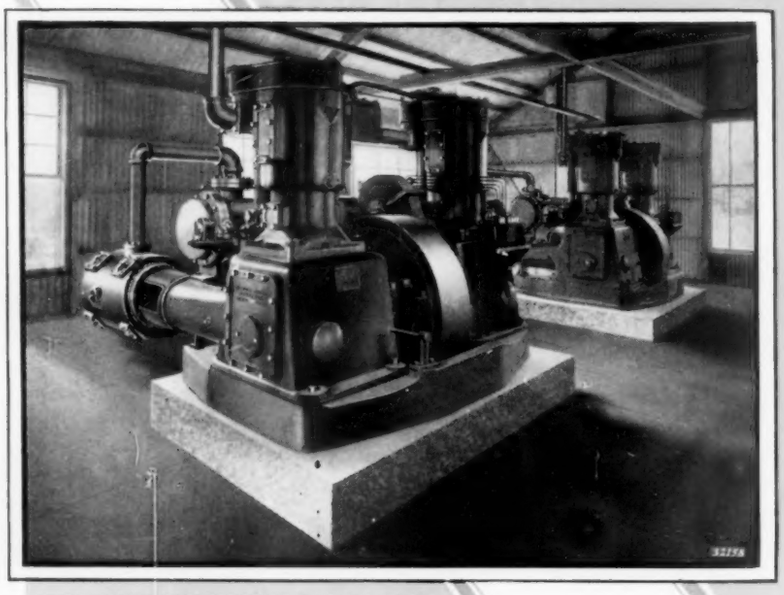
Air Compressors
Gas Compressors
Portable Compressors
Turbo Blowers
Cameron Pumps
Oil Engines
Gas Engines
Vacuum Pumps
Air Lift Equipment
Pneumatic Tools
Air Hoists
Rock Drills
"Calyx" Core Drills
Concrete Breakers
Condensers
Heat Exchangers
Oil-Electric Locomotives

See Our Exhibit in Block "E," International Petroleum Exposition, Tulsa, Oct. 5-12



Ingersoll-Rand

Compressors For Every Purpose

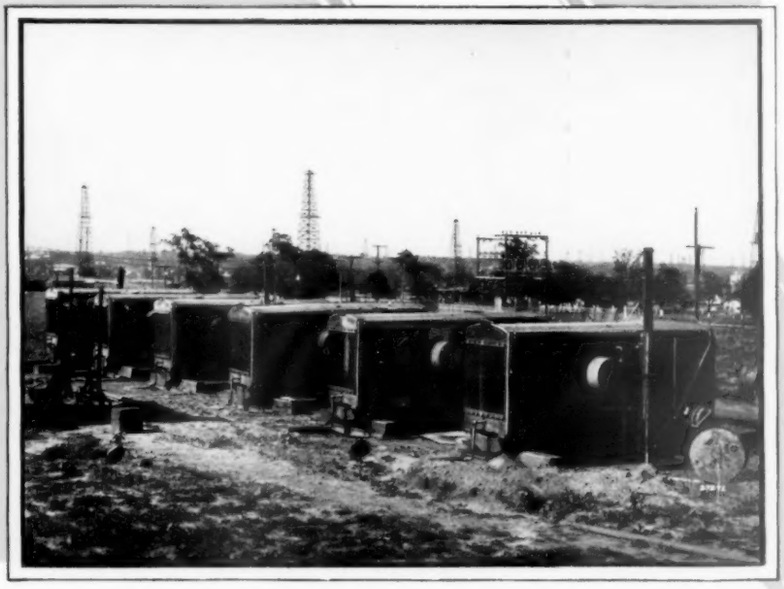


TYPE "XOG" COMPRESSOR INSTALLATION

We can furnish highly efficient air or gas compressors for every field or refinery need. You have the world's largest line to choose from. There are more than 1,000 types and sizes. They are arranged for driving by gas engine, oil engine, steam engine, electric motor, or belt. Our gas-engine units, Types "XG" and "XOG" will answer the requirements for your field work. Cylinders are available for any pressure range, or for vacuum service.

Six Sizes of Portable Compressors

Ingersoll-Rand Portable Compressors will save time and money on countless operations. Standard machines are available in six sizes, with capacities from 66 to 310 cu. ft. per minute. They provide an ever-ready air supply for operating rock drills, concrete breakers, pneumatic tools, etc. Any desired mounting may be had. High-pressure portables are offered for continuous service at pressures up to 500 pounds, and intermittent service up to 1,000 pounds.



BATTERY OF HIGH-PRESSURE PORTABLES IN SEMINOLE FIELD

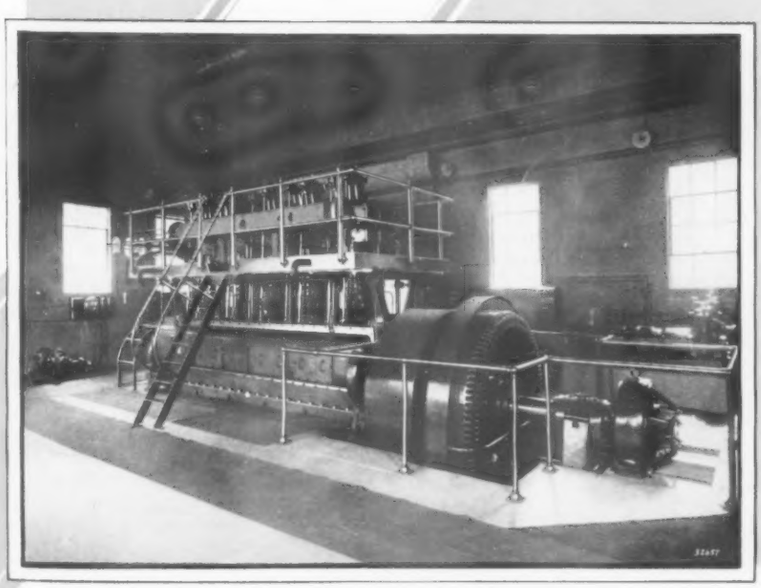
Cameron Pumps for all Services

Each of the many Cameron pumps is designed for a particular service. Pipe line pumps are built in capacities from 5,000 to 70,000 barrels a day, and for pressures up to 1,000 pounds. General service pumps will handle crude oil, refined oil, gasoline, or water in quantities up to 100,000 g. p. m. Hot oil pumps can be had for all service conditions up to 800° F., and 1,500 pounds pressure. Boiler feed pumps are available for all classes of service.

CAMERON PUMPS IN REFINERY SERVICE

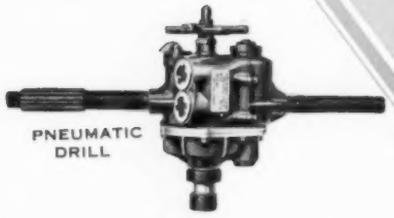
Oil Engines for Generating Power

Ingersoll-Rand Type "PR" oil engines are highly efficient units of the solid fuel injection Diesel type. They show remarkable fuel economies, and are well suited to driving generators. These engines are built in sizes up to 6 cylinders and in capacities up to 1,200 horsepower. We also make the Type "PO" oil engine in sizes up to 150 horsepower. For use where gas is available, we offer the Rathbun gas engine, a dependable and economical power source.



A 585-B.HP. TYPE "PR" OIL ENGINE DRIVING A GENERATOR

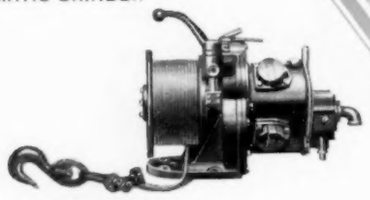
A Complete Line of Modern Pneumatic Tools



PNEUMATIC DRILL

RIVETING HAMMER

PNEUMATIC GRINDER



PORTABLE "UTILITY" HOIST

CHIPPING AND CALKING HAMMER

SCALING TOOL

Ingersoll-Rand makes a complete line of modern pneumatic tools that have a wide application in oil field service. Included are riveting hammers, chippers, grinders, drills, calking tools, scaling tools, air-motor hoists, clay diggers, etc. Hundreds of these tools are in use in refinery service.

"Jackhamer" Rock Drills

"Jackhamer" rock drills and Ingersoll-Rand concrete breakers are effective, money-saving tools for excavating any hard material, or for demolition work. The line includes sizes suitable to every operation.

"SAFETY FIRST" AIR SAW

PNEUMATIC DIGGER

CONCRETE BREAKER

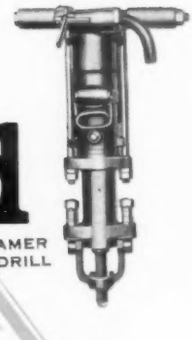
INGERSOLL-RAND CO. - 11 Broadway - New York City

Branches or distributors in principal cities the world over

For Canada refer—Canadian Ingersoll-Rand Co., Limited, 10 Phillips Square, Montreal, Quebec

BIRMINGHAM	DALLAS	HOUSTON	NEW ORLEANS	SAN FRANCISCO
BUTTE	DENVER	LOS ANGELES	PITTSBURGH	SEATTLE
CHICAGO	EL PASO	MEXICO CITY	SALT LAKE CITY	ST. LOUIS
CLEVELAND				TULSA

Ingersoll-Rand



JACKHAMER ROCK DRILL

Sedgwick County Operators *Agree to* Curtailment

TULSA.—Producers in the Wright and Valley Center pools of Sedgwick County, Kansas, voted September 30 to restrict the daily output of those pools to 15,000 barrels daily for one month, beginning October 5. This decision followed a check of production which showed the pools producing 30,000 barrels September 26.

The producers selected Tom C. Johnson of Wichita as umpire of the pools.

In the curtailment program a committee was named to seek methods of slowing down drilling in the pools. While no action was taken, the proposition of carrying the 50 per cent restriction into the Greenwich pool of that county was discussed.

Another decision was to call a meeting October 29 to consider the question of further curtailment at the end of the first month.

Success in regard to East Earlsboro, which was put under a 50 per cent. curtailment through an order of the Oklahoma corporation commission September 27, has brought producers to believe that the crude oil situation in the Mid-Continent area can best be handled after this fashion.

Instead of striving to place a dam across a large river, the plan is to place the obstructions across tributaries of the large stream. This figure represents the present attitude of Mid-Continent oil producers toward the question of conservation.

Oklahoma City was the first area to come under a ban of this type. An order of the Oklahoma Corporation Commission resulted in complete shutin for this pool for 30 days. This pool did not have sufficient pipe line capacity to permit early completion of wells drilling, so there was no opposition to the order.

Following the Oklahoma City order, lease holders of the East Earlsboro pool, through a petition filed by the Barnsdall Oil Corporation, sought and secured a similar order, with the exception that 50 per cent shutin was all that was asked.

Now the opinion is gaining favor to the effect that similar orders can be had with regard to the other flush areas of Oklahoma. Pools that may come before the Oklahoma corporation commission on this question are:

Pool—	Daily Production
McCully	15,600
Allen	23,500
Sasakwa	12,000
East Little River	26,000
Asher	9,350

While it is not certain that all of these will be brought before the corporation commission, it is a fact that those concerned about the amount of crude oil now being produced and the chances for a reduction in its price are making ready to carry the curtailment program into other areas.

Along with the pools listed above, the talk is that the Oklahoma City pool, when its 30-day period of 100 per cent curtailment has ended, will be put up as a spot for 50 per cent curtailment and thereby classed as other flush areas of the Mid-Continent.

Success of the venture at East Earlsboro will determine to some extent what moves are taken in regard to these other pools. East Earlsboro went under its 50 per cent curtailment program September 28, with only one protest. If the plan adopted at Oklahoma City and the method selected for carrying out the order are successful, it seems certain that lease holders in these other areas will follow with similar petitions.

Progress Reported in Prairie-Sinclair Merger

TULSA.—Progress on the transaction scheduled to bring about the merger of the Prairie Oil & Gas Company and the Sinclair Consolidated Oil Corporation, is indicated by news dispatches from the New York financial center. Indications are that the merger will not be completed for several months. Officials of both concerns have intimated that the deal is in a state of consummation.

If Wall Street has its information authentically, the deal will result in the absorption of the Sinclair properties by the Prairie organization, whose name will be continued and the Sinclair name dropped. Larger headquarters for the Prairie Oil & Gas Company in New York, an enlargement of office buildings at Independence and a larger office in Tulsa are expected to result. Both the Prairie and the Sinclair interests have offices in New York. Headquarters of the Prairie, however, is at Independence, Kansas, which is expected to remain the operating point of the consolidated firm.

Headquarters of the Sinclair Oil & Gas Company is in Tulsa, as also are the land and scouting departments of the Prairie Oil & Gas Company.

That the deal will result in the Standard Oil Company of Indiana coming into full ownership of the Sinclair Pipe Line Company and the Sinclair Crude Oil Purchasing Company is indicated. Standard Oil Company of Indiana now owns half interest in both these subsidiaries of Sinclair Consolidated. The pipe line facilities consist of lines from Texas to the Chicago refining territory, with a line south from Central Texas to Houston.

Will Result in Integrated Company

Completion of the deal will give the petroleum industry another major oil company of the integrated type. The Prairie Oil & Gas Company is an oil producing and oil buying unit, with daily production in excess of 100,000 barrels daily and purchasing power of the more than that. The Prairie Pipe Line Company is the largest oil transportation system in the industry, having lines north from Texas into the Middle West and south from Mexia to the Gulf Coast through joint ownership of the Prairie Pure pipe line from Mexia to Smith's Bluff.

Acquisition of Sinclair facilities would bring still greater production, with extensive refining plants, both bulk and retail sales facilities, foreign production, as well as tankers for water transportation.

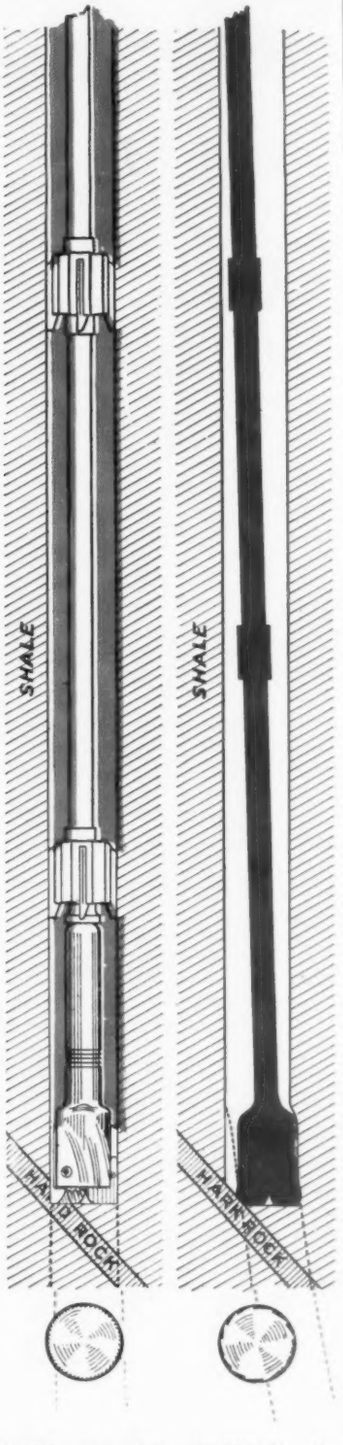
The deal is classed as one involving properties valued at $600,000,000. Prairie Oil & Gas Company has capital of $70,000,000 authorized, with $60,636,450 outstanding. Current quotations on the stock are around $55 a share. The Prairie Pipe Line Company has authorized capital of $101,250,000, all outstanding, par $25, now selling around $60 a share. Sinclair Consolidated Oil Corporation has 10,000,000 no par shares authorized, with 5,500,000 shares outstanding; preferred shares of $100 par, $100,000,000 authorized, with $16,025,200 outstanding, as well as bond obligations of $66,000,000.

Two Jobs

at one time with the new

K-P Reamer Body

By using one K-P Reamer Body on top of the drill collar, approximately 10 feet above the drilling bit proper, and another on top of the first joint above the drill collar, or approximately 22 feet above the lower reamer body, as shown in the first illustration to the right; it is possible to do two jobs at the same time—(1) ream the hole out to full gauge, and (2) keep the pipe from flexing. Answer. Straight Hole.



The drawing to the left above shows the K-P Bit with K-P Reamers, one on top of the drill collar, using new reaming blades, and the other as a guide, using old reaming blades, to prevent pipe flexure as shown. These can also be used with smooth roller reamers.

The second illustration to the right shows what usually happens when the ordinary drilling bit suddenly comes into contact with a hard formation. The driller subconsciously releases the brake (nine out of ten do this instinctively) and the added weight placed on the drilling bit causes the pipe to flex and the drilling bit to go off the vertical. When K-P Reamer Bodies are used as shown in the first illustration, this is avoided.

Just why vertical drilling is possible with the K-P Reamer and K-P Straight Hole Drill and how it is done is all explained in detail in our folder B2. Just write your name and address on the corner of this page. Then tear it off and mail it to us and we'll send the folder.

NEW K-P REAMER BODY

Side view of 11-inch K-P Reamer Body showing one K-P Self-Aligning Reamer Blade and Wrench. Note the nail through the bolt head which fits into the formed depression corresponding to the rib in the reamer blade. Rib holds blade from outward displacement. Bolt holds reamer from downward displacement.

K-P STRAIGHT HOLE BIT

The K-P regular Straight Hole Bit has 56 inches of side cutting surface at the average speed of a rotary with 6 separate contacts (2 on each reamer 11" long; 1 on each cutter 6" long.) K-P in action is like a tube. At the average rotary's speed of 40 R.P.M. K-P makes 240 cutting contacts per minute. Leaves shale in its natural hard state and keeps holes from caving.

Kennedye-Plumb Corporation

Backed by 70 Years of Knowing How

ST. LOUIS, U. S. A.

at your Supply Store or, in California, at
K-P Bit Co., Los Angeles

"The Line of Least Resistance"

Markets--Production--Crude Prices

H. J. STRUTH, *Staff Economist, Houston, Texas*

Industry Finally Becoming Curtailment-Minded

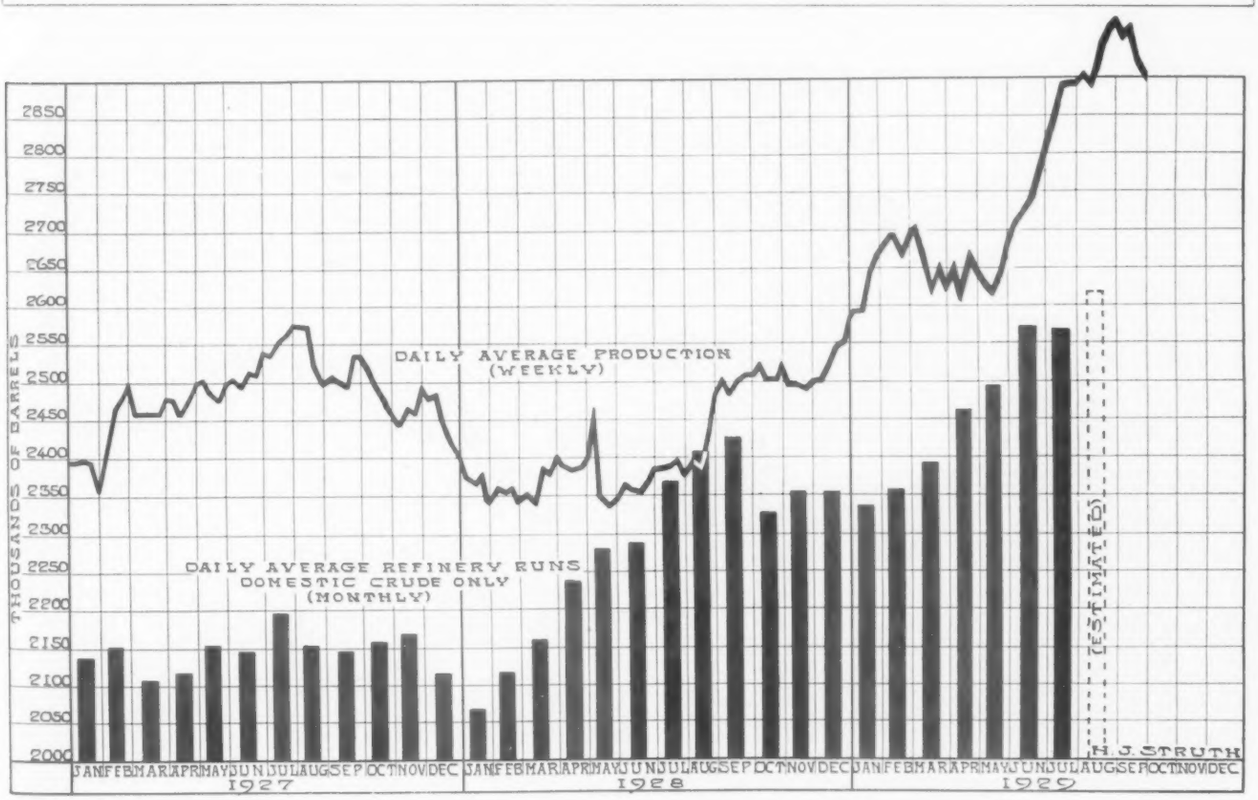
AFTER months of uncertainty over the outcome of over-production, the petroleum industry is finally becoming curtailment-minded. Following the 30-day shut-down at Oklahoma City, the movement to prevent further demoralization gained momentum, until a number of prolific producing areas are on the verge of drastic curtailment that promises to furnish the necessary prop against an immediate decline in the crude market. In addition, talk of voluntary curtailment is again becoming prevalent in California, with the prospect that definite steps will be taken there within the next few weeks. It is gratifying to know that the industry is beginning to recognize its plight and is taking serious steps to correct its top-heavy situation—but the fact remains that the necessary consructive measures were delayed too long to effect desired stabilization this year. With stocks of all oils at an abnormally high level, it is apparent that the industry must necessarily be content to accept lower values for its products at least until next spring.

Last week, practically all of the critical producing areas of the country registered a decline which aggregated 24,100 barrels, bringing the total daily production down to 2,900,400 barrels. Declines in Oklahoma, Kansas, Texas, Gulf Coast and California aggregated 28,850 barrels, while increases in North Louisiana, Arkansas, Eastern States and Rocky Mountain states amounted to 4570 barrels. Of outstanding interest are the following production figures of important fields for the past week:

	Daily Production	Increase or Decrease
Oklahoma:		
Oklahoma City ...	950	800 Decr.
Earlsboro	103,150	5,900 Decr.
Texas:		
Gray County	78,300	6,550 Decr.
Howard County ..	38,300	2,300 Incr.
Pecos County	135,600	3,350 Incr.
Barbers Hill	19,300	1,900 Decr.
California:		
Santa Fe Springs .	275,000	20 000 Decr.
Long Beach	172,000	1 000 Incr.
Midway-Sunset ...	70.000	2 000 Incr.
Kettleman Hills .	10,500	5,700 Incr.
Mountain States:		
Salt Creek	34,250	2,250 Incr.
Eastern States:		
All fields	138,500	1,000 Incr.

Oklahoma seems to be furnishing the

DOMESTIC PRODUCTION AND REFINERY RUNS



incentive to the industry to take serious action on curtailment of over-production. The apparent success in shutting in Oklahoma City for 30 days is having a marked effect upon operators not only in other sections of Oklahoma, but also in Kansas. Efforts are now being made to shut in the Earlsboro area, while operators in the Sedgewick, Kansas, field are preparing to effect a shutdown within the next few weeks. The dispatch with which curtailment has been accomplished in Oklahoma, while really a necessary step in the case of Oklohoma City, exemplifies what can be accomplished when concerted effort is obtained. As a result of the sharp declines in Oklahoma and Kansas during the past two weeks, excess production has been reduced from 78,415 barrels daily to 29,965 barrels. Undoubtedly, the result of this decline will have a beneficial effect upon the Mid-Continent crude market in preventing an immediate reduction in posted prices. This fact alone demonstrates what can be accomplished when the facts are known. Unfortunately, action was delayed longer than necessary, coming only in time to curb a price recession in the crude market but not in time to avoid the consequences of over-supply. How long these efforts will remain in force depends upon the continued cooperative spirit and consciousness of operators of their true situation. Unless the effort is continued throughout the balance of this year, at least, there will be little hope of attaining any degree of stabilization during 1930.

HOW LAST WEEK'S DAILY AVERAGE PRODUCTION COMPARES WITH AVERAGE OF 1928

	Daily Av'ge Year 1928 (Bureau of Mines Data)	Daily Av'ge September 28, 1929 (A. P. I. Wkly Prod. Rept.)	Excess
Oklahoma-Kansas	786,585	816,550	29,965
Texas-Louisiana-Arkansas	849,205	989,150	139,945
California	633,831	877,700	243,869
Balance of United States	190,391	217,000	26,609
Total United States	2,460,012	2,900,400	440,388
Mexico-Central and South America	561,339	609,249*	47,910
Grand Total	3,021,351	3,509,649	448,298

*As of March 30, 1929—latest date available.

Texas

While Texas registered a net decline of 2450 barrels, exclusive of the Gulf Coast area, it is noted that further gains were recorded in Howard and Pecos Counties. At the same time Gray County showed a loss of 6550 barrels, which is not credited so much to curtailment effort as it is to a natural slump in productivity of the field. The area comprising Texas, Louisiana and Arkansas is now charged with a daily excess output of 139,945 barrels. While there are a number of encouraging factors on the horizon, that are regarded as constructive to the Texas crude market, there are also some uncertainties that could further complicate the crude situation there. On the constructive side is the news that Winkler County has undoubtedly reached its peak, while Pecos wells are showing strong signs of water encroachment. At the same time, important extensions are being made in the Pecos district that may completely change the otherwise stabilized condition of that area. The fact that Gray County production is waning cannot as yet be considered a market factor. It should be remembered that development is still proceding at a high rate in that area and important discoveries are not impossible. There is no doubt plenty of oil in Gray County, that may sooner or later reveal its presence with unexpected force. At any rate, this area cannot be said as yet to have been removed as a market factor, notwithstanding the short life of present wells.

California

Although the situation in California has shown no marked change as regards anticipated curtailment activities, talk has again been revived to the effect that a majority of the larger companies are in favor of voluntary curtailment immediately. Of course, this has been the outward attitude of the California companies since the advent of the new gas saving law, but up to this time practically no action has been taken. A decline of 20,000 barrels last week at Santa Fe Springs was welcomed by the industry, but cannot be attributed to curtailment efforts. As has been pointed out before, there may be spasmodic periods when production will suddenly decline, but this is only due to the fact that there was a lack of completions in the deep sands. This was the case last week. In the meanwhile, drilling continues at a feverish pace and there is every indication that succeeding weeks will show material gains in production at Santa Fe Springs. Only when the state is able to actually enforce the provisions of the new gas law, or when the operators themselves decide to voluntarily limit production, can the industry expect relief from California. Each week causes stocks of crude to mount in the Los Angeles Basin, further weakening the market structure. Excess daily average production of the state is now 243,869 barrels, although actually the excess is above 300,000 barrels, considering actual demand against current supply. It looks now as though

Details on Critical Fields

Pool—	Oil Wells Completed	Total Initial Production	Initial Per Well	Number Producing Wells	Daily Production Barrels	Daily Prod. Per Well	Rigs Up	Wells Drilling
WEST TEXAS:								
Hendrick	616	3,115,555	5,073	580	122,940	212[2]	1	6
Church & Fields	198	205,595	1,043	193	23,125	120	3	3
Gulf-McElroy	79	60,700	768	78	14,940	192	.	2
Yates	346	2,290,755	6,618	338	132,705	392[2]	6	11
TEXAS PANHANDLE:								
Gray County	483	336,915	698	458	78,430	171	13	78
CALIFORNIA:								
Santa Fe Springs[1]	360	1,236,800	3,436	199	249,000	1,250	25	224

[1]Includes deep zone production only. For field total add 215 wells and 26,000 bbls.
[2]Production partially pinched.

the California companies will be forced to limit production as a means of their own salvation, regardless of the outcome of the gas saving law.

Efforts are now being made to piece together the ragged ends in California and formulate some plan whereby production will be reduced before drastic action is taken by the state or a crude cut is made. The seven largest operators have agreed on a plan, while the smaller operators are meeting to present their case and meet the majors on some workable scheme. Santa Fe Springs is the center of interest in the move to stop gas waste and at the same time bring production down to a sensible level. The waste is still in excess of 400 million cubic feet per day, while excess oil production is almost 300,000 barrels. The state's hands are tied until after October 14, and little may be done in this respect before November 1. Only voluntary cooperation among the operators will accomplish the purpose immediately. One major company has started to pinch in its wells and it is possible that other companies will follow suit. If this move gains momentum, Santa Fe Springs may be brought under control within a few weeks. The smaller operators are divided on the plan to prorate gas and much resistance is expected when the pinch actually comes.

Ventura operators are attempting to devise a plan to reduce gas waste in this field, but there is a wide difference in the views held concerning the best methods to accomplish the purpose. It is believed that elimination of gas waste would result in a reduction of at least 10,000 barrels of oil.

Kett'eman Hills Agreement

Signing of the Kettleman Hills agreement marks an important step forward in conservation methods. This field now seems definitely out of the way, at least as far as large production is concerned, for nearly two years. This field produces a very light oil, which is nearly all gasoline, and a daily production of 100,000 barrels would equal twice the amount in other California fields.

Both light and heavy oil is being stored in California and the surplus is expected to run at least through October. Santa Fe Springs and Long Beach are chiefly responsible for the surplus of light crude, while the heavy stocks are derived from both heavy crudes and fuel oil thrown over from light oil refinery runs.

The demand for export gasoline at prevailing prices is somewhat weaker, with a few cargoes moving at not more than seven cents. The net-back on shipments to the Atlantic seaboard has been as low as 6½ cents. Fuel oil is slightly weaker, with this commodity moving at prices below 50 cents for odd lots. Larger quantities are being sold at slightly higher prices.

Three widely scattered points in the interior of Texas are being observed closely for fear they may become disturbing factors in a crude situation that is already treading on thin ice, due to lack of interest on the part of crude buyers to maintain normal purchases, especially in the Panhandle and West Texas district.

The Northeast Texas fault zone is making a bid for a new field in northeastern Van Zandt County, where the Pure Oil Company has cemented casing on top of a richly saturated oil sand. The drilling of the plug and testing of the horizon has been postponed for a week or more, but in the meantime the company is making preliminary arrangements to protect its property lines in the drilling rush that usually follows a strike in this section of the state.

Guadalupe County, located in the Luling district, has two pools in process of development that may break loose with a major drilling campaign on short notice, especially in the Darst pool, where major companies control the acreage and are becoming suspicious of each other as regards getting the jump on drilling.

Northeastern Pecos County is being watched as the likely source of a flood of oil for West Texas, owing to two nearby pools underway, with a large number of wildcats starting up in all directions. Landreth Production Corporation has shown its confidence in this section of Pecos County's coming through with big production by starting work on an eight-inch line to a car rack at McCamey, and placing orders for 24 80,000-barrel capacity steel tanks for immediate erection.

CRUDE RUNS TO STILLS, GASOLINE, AND GAS AND FUEL OIL STOCKS, WEEK ENDING SEPTEMBER 21, 1929

(Barrels of 42 Gallons)

Following are American Petroleum Institute figures showing refinery crude runs, gasoline stocks, and gas and fuel oil stocks, for the week ended Septemer 21:

District	Percent Potential Capacity Reporting	Crude Runs to Stills	Percent Operated of Total Capacity Reporting	Gasoline Stocks	Gas and Fuel Oil Stocks
East Coast	100.00	3,593,000	90.5	4,359,000	9,118,000
Appalachian	89.1	605,700	83.9	810,000	768,000
Ind., Ill., Ky.	98.7	2,175,900	94.0	4,267,000	3,624,000
Okla., Kans., Mo.....	79.7	1,968,500	82.7	2,189,000	4,325,000
Texas	90.1	4,161,500	89.8	4,194,000	12,931,000
Louisiana-Arkansas ..	96.7	1,295,900	76.0	1,792,000	5,238,000
Rocky Mountain . ..	93.4	447,900	51.6	1,746,000	965,000
California	98.7	4,978,200	85.7	13,045,000	108,099,000
Total week Sept. 21.	94.0	19,226,900	85.8	32,402,000	145,068,000
Daily Average		2,746,700			
Total week Sept. 14.	93.9	18,476,200	83.5	31,714,000	144,473,000
Daily Average		2,639,400			
Texas (Gulf Coast)..	100.0	3,295,500	93.5	3,569,000	9,806,000
Louisiana (G. Coast).	100.0	875,300	80.6	1,533,000	4,396,000

New Pool Opened in Young County

WICHITA FALLS, Texas.—Transcontinental Oil Company's wildcat test on the W. H. Corbett land established a new pool in Young County last week flowing 25 barrels of high gravity oil per hour, with an estimated flow of 7½ million cubic feet of wet gas daily, from top of the Ranger sand at a total depth of 4007 feet. This producer is located in the northwest corner of the Ruthy Campbell Survey, Abstract 37, about four miles southwest of South Bend and about two miles from the nearest production. The well flowed eight barrels of oil per hour from top of the sand, and jumped to 25 barrels per hour when drilled one foot in the sand September 28. It has a surface elevation of 1237 feet.

A block of 1500 acres is held by Transcontinental Oil Company around its new strike in Young County, and two or three new locations are to be drilled immediately, including a north and west offset to the producer. Arrangements have been made for the Texas Pacific Coal & Oil Company to extend its pipe line system from the northern part of Stephens County to run the oil, which will be turned over to the United Producers Pipe Line Company, a subsidiary of Transcontinental Oil Company in the Ranger district, then delivered to the latter's Fort Worth refinery.

In the Bryson pool, Jack County, the deep lime production that was recently uncovered by the joint test of the Petroleum Producers Company and The Texas Company on the Shanafelt land, failed to extend north, as the Prairie Oil & Gas Company's Bryson 2, a north offset, missed the production, and is now fishing at 4835 feet. The discovery well flowed 50 barrels hourly at 4569-95 feet, but has since declined to about 75 barrels daily. Republic Production Company's Bryson 1, located to the northwest, failed to make a producer in the 3000-foot sand, and also the Shanafelt horizon, and late last week was drilling at 4785 feet, having had a show of oil in sandy-lime at 4648-50 feet.

CRUDE OIL PRICE QUOTATIONS

Revised to October 2, 1929

Crude Price Changes

Effective October 1, all grades of Pennsylvania crude were reduced 25 cents a barrel by the Joseph Sweep Purchasing Agency.

Effective October 2, Ohio Oil Company reduced Western Kentucky crude 15 cents a barrel, making the new price $1.68.

EASTERN STATES
(Effective October 1, 1929)

Penna Grade Oil in New York Transit Lines (New York)	$3.05
Bradford District Oil in National Transit Lines (Pennsylvania)	3.05
Penn Grade Oil in National Transit Lines (Pennsylvania)	3.05
Penn Crude Oil in Southwest Pennsylvania Lines (West Virginia)	3.00
Penn Grade Oil in Eureka Pipe Line Lines (Pennsylvania)	2.90
Penna Grade Oil in Buckeye Pipe Line Lines (Ohio)	2.65
Cabell Grade Oil in Eureka Pipe Line Lines (West Virginia)	1.75
Corning 35-cent Grade Oil in Buckeye Pipe Line Co.'s lines	1.80
Corning 25-cent Grade Oil in Buckeye Pipe Line Co.'s lines	1.90
Somerset Oil in Cumberland Pipe Line lines (Kentucky)	1.80
Ragland Grade Oil in Cumberland Pipe Line lines (Kentucky) (Effective Jan. 29, 1929)	60
Keister (Pennsylvania)	1.20

CENTRAL STATES
(Effective May 21, 1929)
Posted by Ohio Oil Co.

Illinois	1.75
Indiana	1.57
Lima	1.80
Plymouth	1.28
Princeton	1.75
Waterloo	1.35
Wooster	1.90

WESTERN KENTUCKY

All grades	1.68

MID-CONTINENT
(Effective May 21, 1929)
Magnolia Petroleum Company

Under 26	.70
26 to 26.9 gravity	.75
27 to 27.9 gravity	.85
28 to 28.9 gravity	.90
29 to 29.9 gravity	.95
30 to 30.9 gravity	1.05
31 to 31.9 gravity	1.15
32 to 32.9 gravity	1.25

From 33 to 44 gravity and above, Magnolia Petroleum Company prices are the same as those of Carter Oil Company.

MID-CONTINENT
(Effective May 20, 1929)
Carter Oil Company, Gulf Pipe Line Company, Sinclair Pipe Line Company, Prairie Oil and Gas Company and The Texas Company

25 to 25.9 gravity	.90
26 to 26.9 gravity	.95
27 to 27.9 gravity	1.00
28 to 28.9 gravity	1.05
29 to 29.9 gravity	1.10
30 to 30.9 gravity	1.15
31 to 31.9 gravity	1.20
32 to 32.9 gravity	1.25
33 to 33.9 gravity	1.30
34 to 34.9 gravity	1.35
35 to 35.9 gravity	1.40
36 to 36.9 gravity	1.45
37 to 37.9 gravity	1.50
38 to 38.9 gravity	1.55
39 to 39.9 gravity	1.60
40 to 40.9 gravity	1.65
41 to 41.9 gravity	1.70
42 to 42.9 gravity	1.75
43 to 43.9 gravity	1.80
44 and above	1.85

PANHANDLE
(Effective May 20, 1929)

GRAY COUNTY
(Humble Oil & Refining Company, Magnolia Petroleum Company, Gulf Pipe Line Company)

Below 29 gravity	.90
29 to 29.9 gravity	.95
30 to 30.9 gravity	1.00
31 to 31.9 gravity	1.05
32 to 32.9 gravity	1.10
33 to 33.9 gravity	1.15
34 to 34.9 gravity	1.20
35 to 35.9 gravity	1.25
36 to 36.9 gravity	1.30
37 to 37.9 gravity	1.35
38 to 38.9 gravity	1.40
39 to 39.9 gravity	1.45
40 to 40.9 gravity	1.50
41 to 41.9 gravity	1.55
42 to 42.9 gravity	1.60
43 to 43.9 gravity	1.65
44 and above	1.70

WHEELER COUNTY
(Humble Oil and Refining Company and Magnolia Petroleum Company)

Below 30 gravity	.90
30 to 30.9 gravity	.95
31 to 31.9 gravity	1.00
32 to 32.9 gravity	1.05
33 to 33.9 gravity	1.10
34 to 34.9 gravity	1.15
35 to 35.9 gravity	1.20
36 to 36.9 gravity	1.25
37 to 37.9 gravity	1.30
38 to 38.9 gravity	1.35
39 to 39.9 gravity	1.40
40 to 40.9 gravity	1.45
41 to 41.9 gravity	1.50
42 to 42.9 gravity	1.55
43 to 43.9 gravity	1.60
44 and above	1.65

CARSON-HUTCHINSON COUNTIES
(Humble Oil and Refining Company, Magnolia Petroleum Company and Gulf Pipe Line Company)

Below 32 gravity	.90
32 to 32.9 gravity	.95
33 to 33.9 gravity	1.00
34 to 34.9 gravity	1.05
35 to 35.9 gravity	1.10
36 to 36.9 gravity	1.15
37 to 37.9 gravity	1.20
38 to 38.9 gravity	1.25
39 to 39.9 gravity	1.30
40 to 40.9 gravity	1.35
41 to 41.9 gravity	1.40
42 to 42.9 gravity	1.45
43 to 43.9 gravity	1.50
44 and above	1.55

SOMERSET
Grayburg

Below 33 gravity	1.05
33 to 33.9 gravity	1.07
34 to 34.9 gravity	1.09
35 to 35.9 gravity	1.11
36 to 36.9 gravity	1.13
37 to 37.9 gravity	1.15
38 and above	1.17

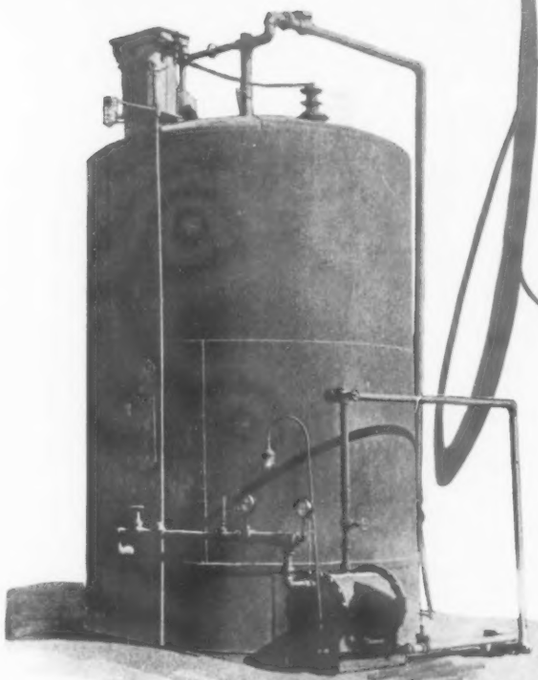
CALIFORNIA CRUDE OIL PRICES AT THE WELL
(EFFECTIVE JANUARY 18, 1929)

Following are the current prices offered by Standard Oil Company for crude oil at the well: (Price per barrel of 42 gallons in fields indicated)

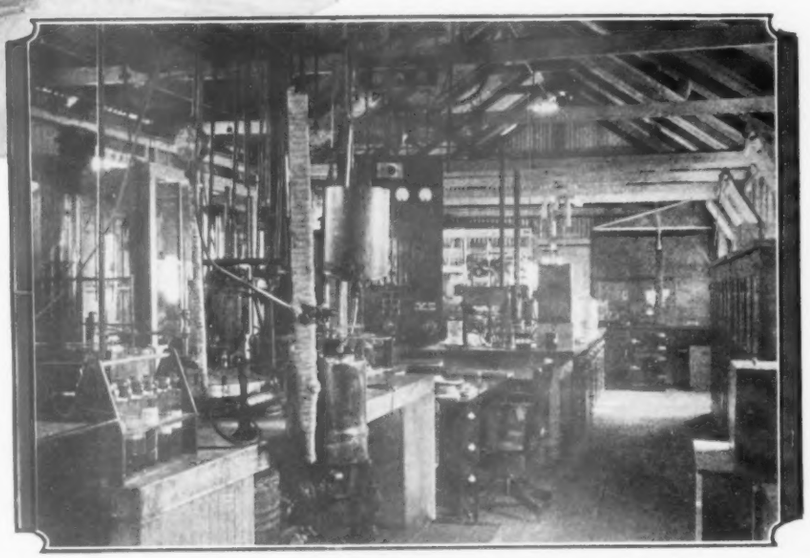
Gravity	Ventura*	Signal Hill	Alamitos Heights-Seal Beach	Huntington Beach	Inglewood	Olinda-Brea Canon	Athens-Rosecrans Dominguez	Elwood† Terrace	Torrance	Richfield	Whittier La Habra	Montebello	Coyote Hills	Santa Fe Springs	Newhall McKittrick Kern River	Midway-Sunset Elks Hills	Buena Vista Hills	Lost Hills	Coalinga	Wheeler Ridge
14-14-9	$ .85	$ .70	$ .70	$ .70	$ .70	$ .70	$ ..	..	$ .70	$ .70	$ .70	$ .70	$ .70	..	$ .50	$ .50	$ .50	$ .50	$ .50	$ .50
15-15-9	.85	.70	.70	.70	.70	.70	..	..	.70	.70	.70	.70	.70	..	.50	.50	.50	.50	.50	.50
16-16-9	.85	.70	.70	.70	.70	.70	..	..	.70	.70	.70	.70	.70	..	.50	.50	.50	.50	.50	.50
17-17-9	.85	.70	.70	.70	.70	.70	..	..	.70	.70	.70	.70	.70	..	.50	.50	.50	.50	.50	.50
18-18-9	.85	.75	.75	.75	.75	.75	..	..	.75	.75	.75	.70	.75	..	.50	.56	.56	.56	.56	.56
19-19-9	.85	.80	.80	.80	.80	.80	..	..	.80	.80	.80	.75	.80	..	.50	.62	.62	.62	.62	.62
20-20-9	.85	.85	.85	.85	.85	.85	..	..	.85	.85	.84	.80	.84	..	..	.68	.68	.68	.68	.68
21-21-9	.86	.89	.89	.89	.89	.89	..	..	.89	.89	.88	.85	.88	.89	..	.74	.74	.74	.74	.74
22-22-9	.87	.93	.93	.93	.93	.93	..	..	.93	.93	.91	.90	.91	.92	..	.80	.80	.80	.80	.80
23-23-9	.90	.97	.97	.97	.97	.97	..	..	.97	.97	..	.95	.94	.95	..	.85	.85	.85	.85	.85
24-24-9	.94	1.01	1.01	1.01	1.01	1.01	1.01	..	1.01	1.01	..	.98	.97	.98	..	.90	.90	.90	.88	.88
25-25-9	.98	1.05	1.05	1.05	1.05	1.05	1.05	..	1.05	1.05	..	1.01	1.00	1.01	..	.95	.95	.95	.91	.91
26-26-9	1.02	1.09	1.09	1.09	1.09	1.09	1.09	..	1.09	1.09	..	1.04	1.04	1.04	..	1.00	1.00	1.00	.94	.94
27-27-9	1.06	1.13	1.13	1.13	1.13	1.13	1.13	..	1.13	1.13	..	1.07	1.08	1.07	..	1.05	1.05	1.05	.98	.97
28-28-9	1.10	1.17	1.17	1.17	1.17	1.17	1.17	..	1.17	1.17	..	1.10	1.12	1.10	..	1.10	1.10	1.10	1.02	..
29-29-9	1.14	1.21	1.21	1.21	..	1.21	1.21	..	..	1.21	..	1.13	1.16	1.15	..	1.16	1.16	1.16	1.06	..
30-30-9	1.18	1.25	1.25	1.25	..	1.25	1.25	..	..	1.25	..	1.16	1.20	1.20	..	1.22	1.22	1.22	1.10	..
31-31-9	1.23	1.30	1.30	1.30	..	..	1.30	..	..	..	..	..	..	1.25	..	1.28	1.28	1.28	1.14	..
32-32-0	1.28	1.35	1.35	1.35	..	..	1.35	..	..	..	..	..	..	1.30	..	1.34	1.34	1.34	1.18	..
32-32-9	..	..	..	..	..	..	1.41	..	..	..	..	..	..	1.35	..	1.40	1.40	1.40	1.22	..
34-34-9	..	..	..	..	..	..	1.47	1.16	..	..	..	..	..	1.40	..	..	..	1.46	1.26	..
35-35-9	..	..	..	..	..	..	1.53	1.22	..	..	..	..	..	1.45	..	..	..	..	1.30	..
36-36-9	..	..	..	..	..	..	1.59	1.28	..	..	..	..	..	1.50	..	..	..	..	..	..
37-37-9	..	..	..	..	..	..	1.65	1.34	..	..	..	..	..	1.55	..	..	..	..	..	..
38-38-9	..	..	..	..	..	..	1.71	1.40	..	..	..	..	..	1.60	..	..	..	..	..	..
39-39-9	..	..	..	..	..	..	1.77	1.46	..	..	..	..	..	1.65	..	..	..	..	..	..
40-40-9	..	..	..	..	..	..	1.83	1.52	..	..	..	..	..	..	..	..	..	..	..	..
41-41-9	..	..	..	..	..	..	1.89	1.58	..	..	..	..	..	..	..	..	..	..	..	..
42-42-9	..	..	..	..	..	..	1.95	1.64	..	..	..	..	..	..	..	..	..	..	..	..

KETTLEMAN HILLS—55 degrees Gravity and above $1.65 per barrel. *Union Oil Company. †Changed March 18, 1929.

(See Page 202)



Petreco —undeniably the BEST!



THE "Petreco" Process for the Electrical Dehydration of Crude Oil Emulsions was discovered and first used on a commercially successful basis almost twenty years ago.

Ever since that epochal accomplishment, in addition to developing and perfecting the "Petreco" Electrical Process, "Petreco" engineers and technicians have carried on one of the most intensive and relentless campaigns of research and experimental work ever undertaken in behalf of industrial progress.

In a complete equipped laboratory providing every essential scientific and mechanical facility — with ample finances at their disposal — these men have studied practically every type of crude oil emulsion produced, and have applied every conceivable method of treatment.

The only objective of this research and experimental work has been results — the solution of "cut oil" problems, as encountered in the Petroleum Industry. Necessarily, it has been unbiased and unprejudiced. In a sense it has been a competitive battle of processes for treating crude oil emulsions — the field against the electrical process — carried on within our own organization.

The fact that after almost twenty years of ceaseless effort the "Petreco" process of treating crude oil emulsions is an electrical process provides sound assurance that the electrical process is undeniably the best.

And yet the work goes on. If ever a better or more successful method of treating crude oil emulsions is developed you can be sure that it will be a "Petreco" process and "Petreco" will make it available to the Petroleum Industry.

The complete story of "Petreco" is contained in our booklet "The Petreco Process for the Electrical Dehydration of Crude Oil Emulsions." Send for it.

Fully covered by process and apparatus patents.

PETROLEUM RECTIFYING COMPANY of CALIFORNIA

Security Title Insurance Bldg. | 530 West 6th Street, Los Angeles, Calif.

Petroleum Bldg., Houston, Texas

CRUDE OIL PRICE QUOTATIONS (*Continued from Page 200*)

WEST TEXAS
(Humble, Gulf, Magnolia, The Marland Company and Southern Crude Oil Purchasing Company)*

Crane-Upton, Crockett, Howard, Pecos and Winkler Counties and Lea County, N. Mex.

Below 25 gravity	.70
25 to 25.9 gravity	.74
26 to 26.9 gravity	.78
27 to 27.9 gravity	.82
28 to 28.9 gravity	.86
29 to 29.9 gravity	.90
30 to 30.9 gravity	.94
31 to 31.9 gravity	.98
32 to 32.9 gravity	1.02
33 to 33.9 gravity	1.06
34 to 34.9 gravity	1.10
35 to 35.9 gravity	1.14
36 and above	1.18

*Gulf does not post in Winkler County; Magnolia posts in Crane, Upton and Winkler Counties. Southern Crude Oil Purchasing Company posts only in Crane, Upton and Winkler Counties.

MARKHAM
The Texas Company
(Effective May 20, 1929)

All grades	$1.00

LULING

All grades	.90

NORTH AND CENTRAL TEXAS
(Effective May 21, 1929)
Ranger, North Texas, Mexia, Powell, Richland, Wortham, Currie, Moran, Nocona and Lytton Springs Crude
(Humble Oil and Refining Company)

Below 25	.85
25 to 25.9 gravity	.90
26 to 26.9 gravity	.95
27 to 27.9 gravity	1.00
28 to 28.9 gravity	1.05
29 to 29.9 gravity	1.10
30 to 30.9 gravity	1.15
31 to 31.9 gravity	1.20
32 to 32.9 gravity	1.25
33 to 33.9 gravity	1.30
34 to 34.9 gravity	1.35
35 to 35.9 gravity	1.40
36 to 36.9 gravity	1.45
37 to 37.9 gravity	1.50
38 to 38.9 gravity	1.55
39 to 39.9 gravity	1.60
40 to 40.9 gravity	1.65
41 to 41.9 gravity	1.70
42 to 42.9 gravity	1.75
43 to 43.9 gravity	1.80
44 and above	1.85

SOUTH TEXAS

Mirando	.90
Salt Flat	1.25

GULF COAST
(Effective May 21, 1929)

Grade "A" all companies	1.30
Gulf Coast Light Oil, below 25	1.15
25 to 25.9 gravity	1.18
26 to 26.9 gravity	1.21
27 to 27.9 gravity	1.24
28 to 28.9 gravity	1.27
29 to 29.9 gravity	1.30
30 to 30.9 gravity	1.33
31 to 31.9 gravity	1.36
32 to 32.9 gravity	1.39
33 to 33.9 gravity	1.42
34 to 34.9 gravity	1.45
35 to 35.9 gravity	1.48
36 to 36.9 gravity	1.51
37 to 37.9 gravity	1.54
38 to 38.9 gravity	1.57
39 to 39.9 gravity	1.60
40 and above	1.63

*Humble Oil & Refining Company's postings on Gulf Coast Light stop at 35 to 35.9. Its price on all crudes above 35 to $1.37 per barrel.

Magnolia Petroleum Company's postings stop at 31 to 31.9.

WYOMING-MONTANA
(Effective May 21, 1929)
Wyoming

Byron	1.33
Ferris	1.60
Elk Basin	1.65
Grass Creek	1.65
Rock Creek	1.40
Lost Soldier	1.05
Lance Creek	1.68
Mule Creek	1.20
Notches	.65
Big Muddy	1.43
Osage	1.65
Hamilton Dome	.85
Pilot Butte	1.75
Torchlight-Greybull	1.65
Lander	.80
Rex Lake	1.10
South Casper Creek-Poison Spider	1.00

Salt Creek
Midwest Refining Company

29 to 29.9 gravity	.90
30 to 30.9 gravity	.96
31 to 31.9 gravity	1.02
32 to 32.9 gravity	1.08
33 to 33.9 gravity	1.11
34 to 34.9 gravity	1.14
35 to 35.9 gravity	1.17
36 to 36.9 gravity	1.20
37 and above	1.23

MONTANA
(Effective May 24)

Sunburst	$1.75
Cat Creek	1.48
Lake Basin	2.20

NEW MEXICO

Artesia	1.08
Hogback	1.43

CANADA
(Effective May 21, 1929)

Oil Springs	2.27
Petrolia	2.20

LOUISIANA-ARKANSAS
(Effective May 22, 1929)
Homer, Haynesville, Caddo, El Dorado, De Soto and Crichton and Cotton Valley*
(Atlantic Oil Producing Company, Standard of Louisiana, Magnolia Petroleum Company and The Texas Company.)

27 to 27.9 gravity	$1.00
28 to 28.9 gravity	1.05
29 to 29.9 gravity	1.10
30 to 30.9 gravity	1.15
31 to 31.9 gravity	1.20
32 to 32.9 gravity	1.25
33 to 33.9 gravity	1.30
34 to 34.9 gravity	1.35
35 to 35.9 gravity	1.40
36 to 36.9 gravity	1.45
37 to 37.9 gravity	1.50
38 to 38.9 gravity	1.55
39 to 39.9 gravity	1.60
40 to 40.9 gravity	1.65
41 to 41.9 gravity	1.70
42 to 42.9 gravity	1.75
43 to 43.9 gravity	1.80
44 gravity and above	1.85

*Shreveport-Eldorado's postings stop at above 40 gravity.

The posting on Cotton Valley is same as Caddo. From 36 to 52 and above the regular gravity schedule is followed.

The Texas Company pays North Texas gravity scale in North Louisiana.

STEPHENS
(All Companies)

Below 28 gravity	.90
28 to 28.9 gravity	.94
29 to 29.9 gravity	.98
30 to 30.9 gravity	1.02
31 to 31.9 gravity	1.06
32 gravity and above	1.10

SMACKOVER
(All Companies)

Below 24 gravity	.85
24 and above	1.00
Bellevue	1.30
Jennings	1.15
Vinton	1.30
Edgerly	1.30
Starks Dome	1.30
Urania	1.00
Calion	.75

IMPORTS OF PETROLEUM AT PRINCIPAL UNITED STATES PORTS
(Barrels of 42 gallons)

	Week Ended Sept. 21	Week Ended Sept. 14
AT ATLANTIC COAST PORTS—		
Baltimore	64,000	322,000
Boston	70,000	.....
New York	946,000	894,000
Philadelphia	351,000	355,000
Others	92,000	268,000
Total	1,523,000	1,839,000
Daily Average	217,571	262,714
AT GULF COAST PORTS—		
Galveston District	55,000	82,000
New Orleans and Baton Rouge	135,000	*243,000
Port Arthur and Sabine District	.....	.....
Tampa	.....	40,000
Total	190,000	365,000
Daily Average	27,143	52,143
AT ALL UNITED STATES PORTS—		
Total	1,713,000	2,204,000
Daily Average	244,714	314,857
Daily Average Four Weeks Ended	278,464	272,821

CALIFORNIA OIL RECEIPTS AT ATLANTIC AND GULF COAST PORTS
(Barrels of 42 gallons)

	Week Ended Sept. 21	Week Ended Sept. 14
AT ATLANTIC COAST PORTS—		
Baltimore	303,000	93,000
Boston	.....	.....
New York	213,000	302,000
Philadelphia	189,000	.....
Others	.....	.....
Total	705,000	395,000
Daily Average	100,714	56,429
AT GULF COAST PORTS—		
Total	.....	.....
Daily Average	.....	.....
AT ATLANTIC AND GULF COAST PORTS—		
Total	705,000	395,000
Daily Average	100,714	56,429
Daily Average Four Weeks Ended	76,571	73,786
Distribution of Total California Oil Receipts is as follows:		
Gasoline	690,000	395,000
Kerosene Distillate	15,000	.....
Total	705,000	395,000

*Revised.

United States Daily Average Production

Figures below are taken from the complete revised estimates of the AMERICAN PETROLEUM INSTITUTE except for the current week, which are advance estimates issued by the A. P. I. and are subject to revision:

1928	Oklahoma	Kansas	Texas (Outside Gulf Coast)	Gulf Coast	North Louisiana	Arkansas	Eastern States	Rocky Mountain	California	United States Daily Av.	United States Total
May	610,100	108,750	561,450	129,850	43,600	91,250	112,100	82,200	630,900	2,370,200	73,476,300
June	594,850	105,200	554,400	135,400	42,350	102,850	109,300	82,400	643,400	2,370,150	71,104,500
July	587,150	102,750	597,250	133,650	42,150	90,700	113,400	80,400	644,700	2,392,150	74,156,600
August	656,350	102,200	604,000	130,200	40,200	87,500	113,300	77,700	634,150	2,445,600	75,534,600
September	724,850	99,750	604,150	129,500	39,050	84,700	112,550	78,850	631,650	2,505,050	75,151,500
October	741,350	97,900	598,550	129,950	38,800	83,550	114,000	83,300	624,450	2,511,850	77,867,800
November	715,750	96,600	586,350	135,100	38,600	83,000	109,700	81,150	653,050	2,499,300	74,978,300
December	710,600	97,200	603,700	135,050	37,300	81,350	113,450	74,600	697,850	2,551,100	79,084,400
1929											
January	722,550	97,150	632,500	136,750	36,650	78,600	111,950	73,200	747,250	2,635,600	81,703,600
February	714,800	95,950	643,350	142,300	35,700	74,600	108,550	71,750	797,800	2,684,800	75,204,400
March	666,500	95,500	662,500	147,750	35,800	74,250	108,850	70,400	786,000	2,647,400	82,068,350
April	665,600	106,400	650,100	154,550	35,550	72,900	110,850	69,400	781,350	2,646,700	79,402,100
May	679,650	115,400	651,100	150,350	35,350	71,500	114,150	72,850	749,250	2,639,600	81,827,600
June	685,200	120,750	688,200	147,500	35,700	70,050	116,750	72,000	827,200	2,763,400	82,902,250
July	722,050	124,250	718,950	148,150	35,750	68,650	122,000	74,250	874,850	2,888,900	89,555,250
August	728,100	127,950	750,750	153,100	36,300	66,900	126,600	77,900	873,300	2,940,900	91,167,250
Sept. 7	735,400	129,600	761,450	159,150	35,550	66,000	135,000	80,000	854,200	2,956,350	20,694,450
Sept. 14	748,700	129,000	740,800	156,350	35,150	65,900	137,500	78,200	873,800	2,965,400	20,757,800
Sept. 21	698,600	128,850	734,350	156,350	36,700	64,700	137,500	76,950	890,500	2,924,500	20,471,500
Sept. 28	689,050	127,500	731,900	153,650	36,850	64,750	138,500	78,500	877,700	2,900,400	20,302,800
Increase	.....	.....	.....	.....	2,150	50	1,000	1,550	.....	.....	.....
Decrease	9,550	1,350	2,450	2,700	.....	.....	.....	.....	12,800	24,100	168,700

TEXAS

(Outside Gulf Coast)

PANHANDLE DISTRICT

	Sept. 28	Sept. 21
Carson County	10,100	10,300
Gray County	78,300	84,850
Hutchinson County	25,100	25,050
Wheeler County	750	850
Others	800	900
Total	115,050	121,950

NORTH TEXAS

Archer County	19,050	19,200
Burkburnett	9,350	9,300
Electra	12,000	12,000
Iowa Park-KMA	5,000	5,100
Montague and Cooke Cos.	17,200	18,500
Wilbarger	31,500	31,700
Others	850	800
Total	94,950	96,600

WEST CENTRAL TEXAS

Brown County	9,600	9,050
Callahan County	3,600	3,600
Coleman County	8,450	7,550
Eastland-Desdemona	7,100	7,300
Jack County	3,900	3,900
Palo Pinto County	550	550
Shackleford County	10,400	10,450
Stephens County	6,500	6,500
Throckmorton County	650	650
Young County	6,900	8,000
Others	700	700
Total	58,350	58,250

WEST TEXAS

Crane-Upton Counties	46,950	47,100
Crockett County	2,250	2,100
Howard County	38,300	36,600
Jones County	2,900	2,900
Mitchell-Scurry Cos.	2,600	2,550
Pecos County	136,600	133,250
Reagan County	17,600	17,650
Winkler County	121,350	121,000
Others	2,900	3,150
Total	371,450	366,300

EAST CENTRAL TEXAS

Boggy Creek	3,450	2,850
Corsicana-Powell	7,050	7,650
Currie	400	450
Mexia	5,300	5,300
Nigger Creek	250	350
Richland	400	350
Wortham	1,050	1,050
Total	17,900	18,000

SOUTHWEST TEXAS

Dale	400	400
Laredo District	9,900	10,900
Luling	10,600	10,750
Lytton Springs	950	1,000
Somerset	1,700	1,500
Salt Flat	42,100	41,600
Refugio	7,400	...
Others	1,150	7,100
Total	74,200	73,250
T'tl Tex.(outside Gulf Coast)	731,900	734,350

TEXAS GULF COAST

Barbers Hill	19,300	21,200
Batson	1,300	1,300
Big Creek	4,650	5,900
Blue Ridge	2,300	2,650
Boling	1,400	1,350
Damon Mound	600	600
Goose Creek	5,500	5,550
Hull	8,250	8,150
Humble	6,100	6,700
Orange County	2,850	2,850
Pierce Junction	12,950	12,250
Raccoon Bend	8,850	8,000
Saratoga	1,050	1,050
Sour Lake	2,650	2,650
South Liberty	6,300	5,700
Spindle Top	22,450	23,150
Sugar Land	10,750	11,900
West Columbia	5,350	6,150
Washington Co.	2,100	2,000
Others	4,400	4,100
Total	129,150	133,700
Texas total	861,050	868,050

OKLAHOMA

Asher	8,200	9,350
Carr City	11,450	11,700
Logan County	14,500	15,600
Braman	4,050	4,000
Blackwell	3,800	3,700
Hubbard	1,800	1,750
Thomas	800	850
Tonkawa	8,650	9,100
Garber	4,850	5,150
Burbank	18,150	18,250
Osage (outside Burbank)	26,000	26,050
Cushing	16,000	16,500
Yale Jennings	6,550	6,600
Davenport	1,350	1,350
Bristow Slick	22,500	21,500
North Okmulgee	12,000	12,200
Lyons Deaner	8,400	8,450
Cromwell	7,800	7,800
Papoose	3,150	3,150
Wewoka	4,300	4,350
Seminole	32,200	32,400
East Seminole	8,550	8,150
Bowlegs	31,950	31,450
Searight	11,100	11,650
Little River	82,550	83,700
Earlsboro	103,150	107,250
Duncan District	7,950	8,000
Graham	4,050	4,050
Fox	1,300	1,350
Healdton	12,550	12,700
Hewitt	7,750	7,800
Scholem Alechem	12,800	12,750
Pearson	1,050	1,050
St. Louis	62,500	62,800
Allen	24,450	23,450
Maud	10,400	11,100
Mission	24,050	24,000
Oklahoma City	950	1,750
Sasakwa	10,450	10,000
Others	55,000	55,600
Total	689,050	698,600

CALIFORNIA

Santa Fe Springs	275,000	295,000
Long Beach	172,000	171,000
Huntington Beach	43,500	43,500
Torrance	12,500	13,000
Dominguez	9,000	9,000
Rosecrans	7,000	6,500
Inglewood	23,500	23,500
Midway-Sunset	70,000	68,000
Ventura Avenue	61,500	63,000
Seal Beach	41,000	41,000
Elwood-Goleta	20,100	20,000
Kettleman Hills	10,500	4,800
Others	132,100	132,200
Total	877,700	890,500

KANSAS

Greenwood County	20,500	20,600
Florence-Covert	950	1,000
Peabody-Ebling	3,300	3,400
Eldorado-Towanda	13,000	13,000
Augusta-Fox Bush	2,950	3,100
Rainbow Bend	1,050	1,050
Russell	3,100	3,100
Churchill	6,900	7,700
Oxford	3,900	3,900
Sedgwick	36,350	36,200
Others	35,500	35,800
Total	127,500	128,850

NORTH LOUISIANA

	Sept. 28	Sept. 21
Homer	3,800	3,850
Haynesville	4,900	4,900
Caddo Light	13,200	10,850
Caddo Heavy	3,350	3,250
DeSoto-Red River	3,150	3,200
Elm Grove	550	550
Bellevue	650	600
Cotton Valley	2,300	2,350
Urania	5,600	5,800
Pleasant Hill	1,000	1,000
Others	350	350
Total North Louisiana	38,850	36,700

LOUISIANA GULF COAST

Bayou Boullion	100	100
East Hackberry	2,500	2,000
Hackberry	2,850	2,200
Edgerly	750	750
Evangeline	2,100	2,150
Lockport	4,300	4,350
Sorrento	150	150
Sulphur Dome	5,600	5,500
Vinton	4,350	4,450
Others	1,800	1,000
Total Louisiana Gulf Coast	24,500	22,650
Louisiana Total	63,350	59,350

ARKANSAS

El Dorado	4,550	4,600
Champagnolle	5,450	5,750
Smackover Light	5,800	5,800
Smackover Heavy	45,600	45,250
Stephens	1,000	1,000
Nevada	1,000	950
Lisbon	1,250	1,250
Others	100	100
Total	64,750	64,700

MOUNTAIN STATES

WYOMING

Salt Creek	34,250	32,000
Grass Creek	2,100	2,250
Elk Basin	900	750
Big Muddy	2,250	2,250
Lost Soldier	4,000	3,950
Rock River	2,200	2,300
Lance Creek	2,350	200
Oregon Basin	5,200	5,200
La Barge	200	230
Others	4,300	4,200
Total	57,750	55,400

MONTANA

Cat Creek	1,350	1,400
Sunburst	6,900	6,950
Pondera	2,750	3,100
Others	50	50
Total	11,050	11,500

COLORADO

Moffats (Craig)	1,200	1,300
Fort Collins	2,050	2,100
Florence	800	900
Others	2,200	2,200
Total	6,200	6,500

NEW MEXICO

Table Mesa	100	100
Artesia	850	850
Hogback	400	400
Rattlesnake	1,700	1,800
Others	400	400
Total	3,450	3,550
Total Mountain States	78,500	76,950

EASTERN STATES

(Including Ill., Ind., Ohio, W. Va., Pa., Ky., and N. Y.)	138,500	137,500

PRODUCTION SUMMARY

East of Rockies	1,944,200	1,957,050
Total U. S.	2,900,400	2,924,500

Oklahoma-Kansas Field Notes

WARREN BAKER, *Staff Representative, Tulsa, Oklahoma*

Oklahoma City Southwest Well Showing Unfavorably

TULSA.—Failure of Indian Territory Illuminating Oil Company and Foster Petroleum Corporation's Foster 1, in the C NE SW Section 24-11-3w, southwestern edge of the Oklahoma City field, to encounter commercial production in the deep oil strata was a very disappointing blow to that pool. Tests are still being made to try and bring it in as a producer, but thus far they have been unsuccessful.

The well is about a quarter of a mile northwest of the discovery well, but more important is the fact that it lies between the Coline Oil Company's Olds 1, and Indian Territory Illuminating Oil Company, Foster Petroleum Corporation, Cromwell - Franklin Oil Company's Bertha Johnson 1, two large true sand formation producers.

At 6592 feet the well had flowed 64 barrels of oil and 361 barrels of water. It was then carried deeper. The last report on its drilling was below 6600 feet, with an increase in both oil and water. It had made 111 barrels of oil and 626 barrels of salt water.

Number of Wells Nearing Producing Depth

A number of tests are down to the producing horizon, and preparing to set their last lengths of casing, or waiting on the cement to set. Two of the most important ones are the T. B. Slick's Glidden 1 and 2, in SE Section 13-11-3w, on a 20-acre tract. Neither well is looking any too promising, since both are around 6550 feet with nothing showing.

Indian Territory Illuminating Oil Company and Foster Petroleum Corporation's Watters 1, NE NW NE Section 25-11-3w, former gasoline well, has drilled through the cement and is bailing.

A test that is being closely watched is the T. B. Slick's Martin 1, NEc Section 13-13-1w, wildcat near Jones, east of Oklahoma City. It was drilling in shale at 5590 feet the last report. It is not expected to pick up production right away, but all of its formations are being watched. It has had several showings and is thought very promising.

Other tests that should soon be completed are in the field proper.

Sinclair Oil & Gas Company opened up Stamper 1, NE SW NW Section 30-11-2w, one day during the week. It made 4385 barrels of oil and 5000 barrels of water, showing that the shutdown was not injuring it.

Coline Oil Company expects to get a master gate on Olds 2, C NE NW Section 24-11-3w, wild gasser. It is estimated making 60,000,000 feet of gas.

Sinclair Oil & Gas Company and Amerada Petroleum Corporation's Kinter 1, NW SE Section 30-11-2w, was making 295 barrels of pure gasoline against a pressure of 2000 pounds.

Mid-Kansas Oil & Gas Company and Ramsey Petroleum Company's Trosper 1, NE NW Section 19-12-1w, discovery well in the Nicoma park area, was making 300 barrels of oil and no water.

South of the field, Prairie Oil & Gas Company, T. B. Slick, and Phillips Petroleum Company's Sudik 1, in C NE NE Section 8-10-2w, is shutdown at 7175 feet for repairs. Cement, which has set since the setting of the 4¾-inch casing has not been drilled out.

Magnolia Petroleum Company's Noble 1, NW S WSW Section 30-12-2w, east of the field, is drilling by lost tools in cement, total depth 6445 feet. This well showed for a gasser.

A new wild gasser was added to the pool, when Mid-Kansas Oil & Gas Company's Browning 1, SWc NW Section 18-11-2w, unexpectedly blew in for about 50,000,000 feet of gas, which is going into the air. This well proves the northeast sector of the pool. Total depth is 5952 feet, which is much higher than the gas stratum found in the pool in other tests.

Third Producer Completed in Ritz Field, McPherson County

WICHITA, Kansas.—The second and third producer in the new Ritz field of McPherson County were drilled in during the past week, one of which is not finally completed

Shell Petroleum Corporation's Ritz 2, SE SW Section 1-20-2w, flowed 675 barrels of oil the first four hours open, and made 1080 barrels the next 12 hours against a 200-pound back pressure. It was cutting from 5½ to eight per cent. The gravity of the oil is 37 degrees. This well encountered the top of the chat at 2935 feet, with the first show of oil and gas at 2948 feet. There was 150 feet of oil in the hole at 2955 feet. It had filled to 500 feet at 2971 feet. The top of the big producing horizon was at 2980 feet and penetrated only six inches. Its production record was on an equal with, if not larger than, the discovery well on the Ritz farm.

The Texas Company's Munn 1, NW NE Section 12-20-2w, which extends the producing area of the new pool one location south, is now shut in for tankage and pipe line connection. This well, which gives great promise due to finding of the producing stratum 33 feet higher than Ritz 2, is spraying gas and oil. The top of the chat in the well was at 2930 feet, with 1,000,000 feet of gas from 2930-35 feet. It increased to 10,000,000 feet of gas at 2935-40 feet. Later the gas had decreased from 10,000,000 feet to 3,250,000 cubic feet, but it had started spraying oil. It will be braden-headed and deepened.

The new Ritz field is 12 miles east of McPherson, and five miles southwest of Canton. The original well was completed the last of June, and after making 368 barrels the first hour and a half was pinched to 2000 barrels. It was soon troubled with water intrusion, but has retained a high production rate. These wells being found in the Ritz field are the largest to be found in the Sunflower state in a long time. The chat producing horizon may not enable them to continue a large daily production, but their size is the greatest factor in increasing activity in the north central area. The Ritz pool is north of the active spots in the central area of the state.

Sedgwick County

The wildcat test of Sinclair Oil & Gas Company and Burgher on the Harrison farm, in the NW NE NE Section 3-26-1w, has found a hole full of water in the Mississippi lime from 3435-37 feet. The top of the Mississippi lime was at 3411 feet. The hole is being deepened. This test is west of the Valley Center, or Wright field, about eight miles.

Plains Oil Company and other's Curry 1, SE SW SW Section 2-27-1w, immediately west of Wichita, found the top of the chat at 3077 feet. A show

Subsidiary of United States Steel Corporation

You Can Depend Upon

AMERICAN

STEEL & WIRE COMPANY

WIRE ROPES

(ON THE YELLOW REELS)

STOCKS

carried throughout all of the oil fields

Endless Belts with HAPPY Vertical Tightners and Automatic Band Wheel Power Idlers

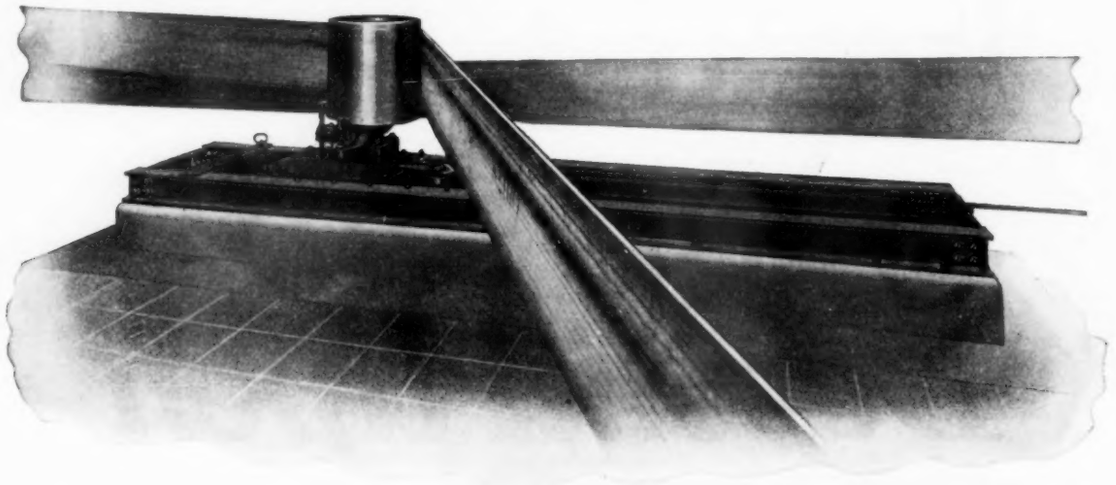
The Happy Tightner permits the use of ENDLESS BELTS. ENDLESS BELTS ELIMINATE DOWN TIME FOR CUTTING BELTS OR BELT CLAMP TROUBLE.

Application of ENDLESS BELTS AND HAPPY TIGHTNERS increase arc of contact on driving and driven pulley, allowing belt to run looser thereby correcting tension and lengthening life of belt.

Corrected Belt Tension permits shorter centers, reducing belt length as well as belt house.

Pulley is mounted on ball bearings equipped with Alemite system and requires greasing only two or three times a year.

Happy Belt Tightners are easy to adjust. The pumper can tighten or loosen tension on belt while in operation. It is mounted on adjustable portable steel frame, which has guides for alignment. The guides having right and left screw for adjustment.



Patent Applied For

ENDLESS BELTS and HAPPY AUTOMATIC IDLERS for Band Wheel Powers eliminate all guess work when applying tension to the slack side of belt. Tension may be increased or decreased by adding or removing weights.

Any change in length of belt either on elongation because of change in load or shrinkage due to change in weather, is automatically cared for and pre-determined tension in the belt is never exceeded.

Pulley is mounted on Ball Bearings equipped with Alemite System and requires greasing only two or three times a year.

HAPPY BELTING COMPANY

TULSA, OKLAHOMA . . . BRANCHES { EL DORADO, ARKANSAS / SEMINOLE, OKLAHOMA

of oil and water was encountered from 3089-94 feet, and another small show of oil from 3105-3110 feet. It is drilling ahead.

Aladdin Petroleum Company is completing its second test in the Wilcox sand near Augusta, in Butler County, opened by its Bausinger 1, on July 29. The well is Sharron 1, SEc NW Section 24-27-3e, a north offset to the discovery well. The top of the Wilcox sand was penetrated at 3003 feet and at 3016 feet the hole had filled up. The big pipe has been pulled and tubing and tankage are on the location. The new well is estimated good for 150 barrels daily. The discovery well is making120 barrels of 44 gravity oil per day on the pump. Aladdin Petroleum Company owns a 1500-acre block in the district, in which Phillips Petroleum Company owns a quarter interest.

E. W. Marland, Inc., Swenson 1, NE SW NE Section 36-18-4w, wildcat test in western McPherson County, went out of the Mississippi at 3355 feet. The top of the Viola lime was found at 3582 feet, with sand from 3705-22 feet, total depth, where it has a hole full of water.

Sasakwa

Tulsa.—One of the best wells to be completed in the Sasakwa area, of southern Seminole County, is the Pure Oil Company's Bates 4, NW SE NE Section 13-6-7, central area of the field. This well flowed 280 barrels the first 90 minutes and was making 225 barrels hourly afterwards. It has the Wilcox sand from 4109-21 feet. Pure Oil Company's Bates 3, SE SW NE Section 13-6-7, found the top of the Wilcox sand at 4090 feet, and at nine feet in swabbed and flowed 950 barrels. This production was attained after a 20-quart shot.

Signal Oil Company's Bond 3, NE SW NE Section 13-6-7, was deepened one foot to 4137 feet in the Wilcox sand found at 4135 feet and flowed 1310 barrels, an increase of about 200 barrels.

Carter Oil Company's Aldridge 1, SE SW NE Section 7-6-8, had the Wilcox sand from 4302-05 feet, with a hole full of water. This well forms a string of failures along the north line, which apparently defines the pool in that direction.

South of Sasakwa in the southeast extension to the Allen field, Sunray Oil Company, got a producer in Joanna 3, NW SW Section 24-5-7. The well made 220 barrels of oil on the swab from the Wilcox sand at 4192-98 feet.

Fort Worth, Texas.—Landreth Production Corporation placed an order early this week with Chicago Bridge & Iron Works for 20 80,000-barrel steel tanks to be erected at McCamey, Texas, where an eight-inch pipe line is being built from Pecos County pools. A total of 24 80's are to be erected by the company to support its drillnig campaign in Pecos County. Four tanks were bought several weeks ago for erection in the field.

Deepened St. Louis Well Yields 1363 Barrels

TULSA.—Independent Oil & Gas Company and Mid-Kansas Oil & Gas Company's Weldfelt 1, NE NW NW Section 2-7-4, in the north extension to the St. Louis pool, was deepened six feet last week to 3795 feet in the Hunton lime and flowed 1363 barrels in 24 hours.

In the Link district of the St. Louis area, Tom Slick Oil Company and White Eagle Oil & Refining Company's Latimer 1, NW SW NW Section 16-7-4, topped the Simpson sand at 4127 feet and at 4130 feet, it flowed 120 barrels of oil in two hours. It suddenly went dead, and while swabbing filled up 1200 feet with water.

These were the most important completions in the St. Louis district, however, there were others. Independent Oil & Gas Company's Mull 1, SE SW Section 35-8-4, in the north extension area, drilled to 4350 feet in the Wilcox sand filled up with water. It made 180 barrels of oil through the bradenhead from the Hunton lime and will be plugged back to that formation.

Sinclair Oil & Gas Company and McGraw Oil Company's Kelly "A" 2, NW NE Section 2-7-4, is drilling deeper in the Simpson sand, where it is swabbing 75 barrels daily.

Magnolia Petroleum Company's Jones 1, NW NE SE Section 8-7-4, encountered a hole full of water while drilling in the Simpson sand from 4225-4230 feet.

Maud Region

This area received a disappointment when the R. A. Irwin and Wofford Drilling Company's Green 1, SWc Section 28-8-5, south of the field, topped the Wilcox sand at 4424 feet and at 4426 feet had 3000 feet of salt water in the hole. It had a show at 4398 feet in the Simpson sand.

McMan Oil & Gas Company and White Eagle Oil & Refining Company's Roberts 2, NW NE SW Section 9-8-5, topped the Hunton lime at 4018 feet and drilled to 4028 feet. It flowed 627 barrels of oil in 23 hours from both the Misener and Hunton formations.

North of the Searight field, Indian Territory Illuminating Oil Company's Fife 1, SW NW NW NE Section 25-10-6, found salt water in the Wilcox sand from 4809-23 feet.

Carter Oil Company's Cox 1, SE SW SE Section 31-10-6, Searight pool, flowed 120 barrels of oil from the Hunton lime, but is making two bailers of water after penetrating the Wilcox sand at 4270 feet.

Earlsboro

Magnolia Petroleum Company's Anderson 9, NW SE NE Section 18-9-6, in the southeast extension district to the Earlsboro field, swabbed 75 barrels of oil in 12 hours from the Wilcox sand and is now cleaning out.

Amerada Petroleum Corporation's Sullivan 2, NW SW NE Section 17-9-6, had the Wilcox sand from 4200-22 feet, and swabbed 425 barrels of oil in 20 hours. It will be shot.

Twin State Oil Company and Gypsy Oil Company's Anderson 1, SE SW NE Section 22-9-5, south of the Earlsboro field, has been plugged to 2910 feet and drilled to 2930 feet. It is making a little oil and some water.

Air Derby is Feature of Exposition

Tulsa.—Something new for the International Petroleum Exposition and Congress and an outstanding event in aviation circles is promised in the Exposition Air Derby, which is to finish at the grounds the opening day, October 5. The derby will be the first of several events in aviation, all to take place between October 5 and 12, when the affair will close.

Closed course events, exhibition flying, night bombing demonstrations and aerial fireworks are also on the program. The grandstand track of the Tulsa Fair Association will be available for the event. No admission will be charged.

Airplanes entered in the derby must be owned either by oil concerns, or by organizations in close affiliation with the industry. All airplanes in the derby must start at a point at least 500 miles from Tulsa and finish at the exposition grounds between 11 a. m. and 6 p. m. October 5. First place will draw $2000 and a trophy. There will be $2500 additional as other prize money.

All airplanes entered in the derby or the closed course events must carry approved type certificates and hold licenses. Pilots must be licensed by the Department of Commerce, hold F. A. L. licenses and annual sporting licenses issued by the contest committee of the National Aeronautical Association.

Word from E. T. Sadler, vice president of the Standard Oil Company, (New Jersey) is that his company will enter several airplanes. Mr. Sadler, as well as other representatives of that company, will fly to Tulsa. Richfield Oil Company will enter an airplane from Los Angeles. Skelly Oil Company, Continental Oil Company, Phillips Petroleum Company, Independent Oil & Gas Company, Texas-Pacific Coal & Oil Company and other concerns of the industry will have entries in the event.

Night bombing and aerial fireworks demonstrations will be in front of the grandstand at the fairgrounds, which adjoin the plant of the exposition.

Westward and Deeper Is Trend In Oklahoma

By WARREN BAKER
Staff Representative

TULSA.—Westward and deeper is the general trend of the oil pay in Oklahoma. This is clearly shown by a review of the past developments and the increasing interest being shown in Western Oklahoma.

The brisk scramble for blocks of acreage in Western Oklahoma is subsiding at present. Attention in the district is being devoted to 40 drilling tests. Leasing activity, however, is merely pending developments.

There seems to be no reason why the producing formations found at Oklahoma City and McCully should not be expected to extend into Western Oklahoma. There apparently is only a thicker bed of top formations, which has since the discovery of oil in the state been found to grow gradually deeper as exploration was carried toward the west.

Thus far the drilling tests have had little more than small showings, but only a few have reached depths where production is expected. These wells have shown the existence of sand in the region. Some have found shallow formations which may yield commercial quantities of oil in parts of the territory.

Importance of Oklahoma City

The importance of the successful development of the Oklahoma City field in encouraging the exploration of Western Oklahoma cannot be over emphasized. This field has shown the possibilities of production from the deeper horizons. It promises to become one of the state's richest spots. It is located along the western boundary of the present producing limits.

McCully field in Logan County pointed out the chances of Western Oklahoma in 1927 but Seminole at that time was taking the attention of the Mid-Continent oil industry.

There has been a trend toward deeper drilling since opening Seminole. The trend was climaxed last December with the discovery of the Oklahoma City field. Success of these deeper operations has caused most of the major companies to enter Western Oklahoma.

Sinclair Drilling Important Well

Attention of the region is focused on the Sinclair Oil & Gas Company's Howell 1, C SW SW Section 14-26-24w, in Harper County. This rank wildcat is regarded as the most important wildcat test in the state. Should it produce in large quantities it would open up more area for prospecting than perhaps any other wildcat discovery well has done.

Located on a block of 33,000 acres, which has been checked by core drill machines, the well is checking the upper formations one right after the other. As one man said, "It looks better the deeper we go." This well spudded before a crowd estimated at better than 5000 people and has made remarkable drilling time, being below 4200 feet in red sandstone and lime.

So heated has the play become that a royalty ownership map of the area looks like a Seminole area royalty ownership, due to the fact that so many royalty buyers took advantage of the cheap prices to get under the region before the prices went up.

Harper County is in the extreme northwestern part of Oklahoma, where little exploration has been made for oil. The formations are expected to be quite deep and Sinclair Oil & Gas Company has prepared the test to go to 7000 feet.

Southwestern Kansas is greatly interested in the important wildcat since it is not far removed from that district and would have considerable effect on that region.

Leasing Between Oklahoma City and Logan County

A very intensive leasing campaign is now in evidence between the McCully-Lovell area in Logan County and the Oklahoma City district. Both areas are the two deepest producing horizons in the state and both have proven themselves very capable producing areas. They form the west boundary of the state's producing areas today.

Another trend that is receiving attention is between the Oklahoma City pool and the new well of the Magnolia Petroleum Company recently completed in the Wilcox sand at Chandler, production of which has rapidly declined. A few offsets have been made to this well. The shallower depth of the Chandler well showed a steep dip in the producing formations between the two spots, and since most of the production trends of Oklahoma have been more north and south than east and west, the McCully-Oklahoma City trend is favored.

The play between Oklahoma City and Seminole continues, but is much quieter as more and more attention is being turned to the west half of the state. Several tests now drilling in the area may revive the interest, or may result in further discouraging operators.

Enid Looms As Oil Center

Now that the Mid-Continent oil men are studying Western Oklahoma more and more the question of divisional headquarters keeps bobbing up.

Oklahoma City will, in all probability, become the center for Central Oklahoma and the southern part of Western Oklahoma, perhaps. Enid is being looked up with great favor by the oil companies as the headquarters for Western Oklahoma. Phillips Petroleum Company and Shell Petroleum Corporation have transferred scouts from Ponca City to Enid. Other companies with field men in the district have stationed them at Enid. Ponca City apparently will have to be contented with the north-central area of the state.

Want Lease Under T.&P. Through Monahans

Fort Worth, Texas.—Legal steps are now being taken by W. A. Tunstill, Fort Worth operator, with the co-operation of The Texas and Pacific Railway company, to acquire from the State of Texas 15/16 mineral rights under 16 miles of the railroad right of way that cuts through the heart of the Monahans field, West Texas district, and drill for oil and gas production. The right of way, which is 200 feet in width, is classed as unsurveyed school lands, with the state retaining fee ownership, but the railroad company is granted uninterrupted use of the land.

Texas and Pacific Railway Company through its president, J. L. Lancaster, has made contract with Tunstill to develop the strip of land jointly when the latter completes application now pending with the State Land Office for the purchase of the land in fee. The railroad company is to receive 60 per cent of the net profits that may accrue from proposed development for oil and gas, while Tunstill is to receive the remaining 40 per cent. The price to be paid for the fee rights to the land, and development and operating expense are to be borne equitably by both parties in the same proportion as they participate in the net proceeds. The right of way involved extends from Pyote to one mile east of Monahans, and is now proven for oil production for about three miles, with Gulf Production Company holding the bulk of the adjoining acreage.

parkersburg

HAS SERVED THE OIL FIELDS OF THE WORLD FOR 32 YEARS

BOLTED STEEL TANKS

The popularity of Parkersburg Bolted Steel Tanks is seen in the fact that storage in some fields is 100 per cent Parkersburg —a fact worth considering.

To the uninitiated, a tank is just a tank whether it be wood or steel, riveted, welded or bolted. As long as it holds oil, the cheapest tank on the market very frequently takes the eye of the purchaser as being his best investment. Such is not the case. The BEST only can be the cheapest in the long run.

Parkersburg Bolted Steel Tanks are made from the best materials obtainable—made with such precision that quick assembly in the field is assured.

The story of these tanks is convincingly told and illustrated in Bulletin "S", a copy of which is yours for the asking.

PARKERSBURG PRODUCTS

Steel Derricks and Steel Crown Blocks	☐	Rig Irons (A.P.I. Standard)	☐
Chain Driven Sand Reels and Bailing Reels	☐	Portable Drilling Machines (Wood and All-Steel)	☐
Steel Wheels	☐	Bolted Steel Tanks	☐
All-Steel Standard Rigs	☐	Miscellaneous Drilling Equipment	☐

Check the equipment in which you are interested, tear out and return this coupon, with your name and address, to us, and we will send you complete information on the items checked.

THE PARKERSBURG RIG & REEL COMPANY

EXECUTIVE OFFICES & MAIN PLANT

PARKERSBURG, WEST, VA.

DURING THE EXPOSITION ▲▲▲

LEARN ABOUT BRADEN SECTIONAL STEEL BUILDINGS

Visit us at Booths 132 - 133, Oklahoma Building, and learn about the construction features of BRADEN *Sectional* Steel Buildings which make possible a combination of (1) prompt shipment, (2) quick erection, (3) minimum upkeep, (4) high salvage when moved, and (5) reasonable prices. . . . . These "ready-made" steel buildings are shipped in completed sections, with doors and windows in place. Erection requires only bolting the sections together, bolting roof trusses in place, and laying roof sheets. . . . . Roof trusses are spaced unusually close together to give great strength without undue weight in individual members. Frames are of structural steel, rigidly braced. Heavy corrugated sheets are securely fastened to frames with aluminum rivets. . . . . BRADEN *Sectional* Steel Buildings are available in sizes and types for any oil industry requirement. . . . . Write, wire or phone for complete information—or see us at the International Petroleum Exposition.

BRADEN STEEL CORPORATION
3 North Madison Ave., Tulsa, Oklahoma
Texas Representatives: Mr. L. E. Bales, Box 2194, Dallas
Texas Steel Building Co., Houston

UTMOST VALUE IN INDUSTRIAL STEEL BUILDINGS

BRADEN STEEL CORPORATION TULSA OKLA TRADE MARK

North and West Texas Field Notes

H. H. KING, *Staff Representative, Fort Worth, Texas*

Pecos County Development Progressing Rapidly

SAN ANGELO, Texas—The spread of development work to the north, east and west of the Rowan-Tong and Taylor-Link pools is progressing at a rapid rate and opens the way for other important discoveries to be made in northeastern part of Pecos County before a showdown can be had as to the merits of the above two producing areas. Companies and individual operators are scattering wildcat tests at close intervals, radiating from the Rowan-Tong pool, while bonuses for leases and royalty interests in this "hot play" have climbed to unusually high levels because of the enthusiasm generated by the recent strikes in the area.

Fifty or more operations have been started, or are getting underway, in the Taylor-Link and Rowan-Tong pools, and the importance of these two areas from a production standpoint should be determined within a few weeks. The former area has been erratic in performance, with flush production lacking in recent completions, but operators are proceeding with the drilling of inside locations, having a total of 35 early this week in and near the pool.

Independent Oil & Gas Company and Rowan-Tong's McDonald 1, which opened the Rowan-Tong pool August 28 with an initial flow rated at 2000 barrels daily from top of lime at 1605 feet, quit flowing late last week. The owners are engaged in running a string of three-inch tubing as a final effort to revive the natural flow. The Texas Pipe Line Company will not be in position to run this oil until about October 15. Tidal Oil Company's McDonald 1, a southwest offset to the producer, encountered two million cubic feet of gas early this week at 1365 feet, followed by a water horizon at 1390-1430 feet. Landreth Production Corporation's McDonald 1-A, four locations south of the discovery well, was drilling below 1150 feet early this week. Both of the latter drilling tests should be in process of completion by the middle of next week.

The Rowan-Tong pool is credited with nine active operations; three machines and derricks underway, and a half dozen locations awaiting machines.

Landreth Interests Active

Having arranged for a field tank farm, as announced last week, the Landreth Production Corporation is pushing developments on its numerous leases in the Taylor-Link and Rowan-Tong pools, having more than 15 scheduled, or underway. Ed A. Landreth, president of the company, has let turnkey contract with the National Supply Company for the construction of a 14-mile, eight-inch screw line from the field tank farm to tank car rack at McCamey, with 10-inch gravity flow lines extending from each pool to the tank farm. This pipe line to the rack will be equipped with two 450 h.p. Westinghouse motors and a pair of Cameron centrifugal pumps, rated at 28,000 barrels capacity each. However, one unit will serve as an auxiliary. Negotiations are pending with a Louisiana refiner for a long time crude contract, deliveries to be made from McCamey in tank cars. Because of numerous field trips, Landreth has joined with other operators in clearing off a landing field for airplanes, and ships are now arriving almost daily.

Actual production in the Taylor-Link pool early this week was less than 1000 barrels daily from five wells flowing "open" and two shut-in. This oil is being run by the Humble Pipe Line Company,

Yates Potential Gauge Shows Above Five Million Daily

SAN ANGELO, Texas. — Estimated potential daily production of the Yates field, based on brief open flow gauges of wells, soared to a high level of 5,110,188 barrels at the close of September, according to new proration figures compiled by Umpire Ray Richmond. The re-gauging of the Mid-Kansas Oil & Gas Company and Transcontinental Oil Company's Yates 30-A, which was reported last week as having set up a new production record for the field, was largely responsible for the estimated potential's exceeding the five million barrel mark for the first time. This unusual well was officially credited with a daily potential flow of 204,681.6 barrels daily, having actually gauged 142.14 barrels per minute for 34 minutes via four six-inch and one four-inch flow lines from regular lime horizon at 1036-70 feet.

Under the terms of proration rules, the Yates field is being held to a maximum flow of 130,000 barrels, with seepage oil excluded from the individual proration allowances. The field has 338 flowing and pumping wells, including 58 that are showing water with the oil output.

Joint properties of the Mid-Kansas-Transcontinental Interests in the Yates field represent about one-third of the producing acreage, but due to an exceedingly large number of big wells, nearly one-half of the allowable production for the field is earned by these properties. At the close of September the above interests were credited with having 2,801,944 barrels daily potential, and during the first 15 days in October will be permitted to produce a maximum of 63,807 barrels daily. Yates 30-A, the record well, is on the same 100-acre unit as 29-A, and they are to be allowed a combined output of 4617 barrels daily, or a very small fraction of their estimated potential production.

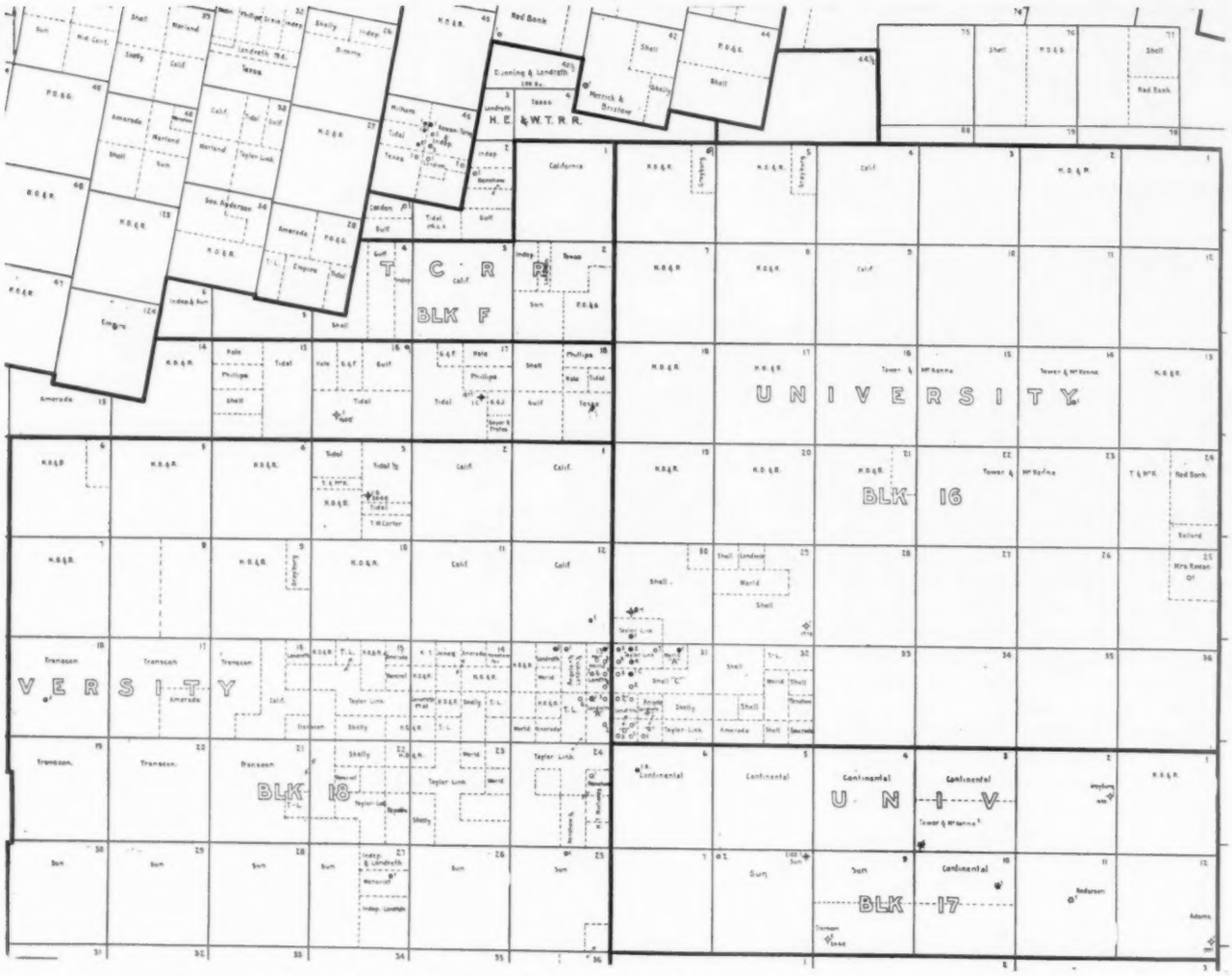
The Cosby Producing & Royalty Company's Kansas City & Ft. Stockton Land Company 1, located in the northwest corner of the east one-half of Section 31, Block 178, T. C. Ry. Survey, is starting up to try to extend production more than one mile to the south of the Yates field.

Big Lake Test Negotiates Difficult Formation

San Angelo, Texas.—Hard lime formation encountered near the 8300-foot level by the Big Lake Oil Company's University 131, Big Lake field, is now being successfully negotiated by introducing special types of drilling bits, jars and stem. Early this week drilling was in progress at 8307 feet.

According to E. C. Stearns, general manager, the following size, weight and type of tools are now being used on this deep test: 4¼-inch, 153-pound Hycrome drilling bit; 3⅝-inch Spang Weldless drilling jars; 3¾-inch Prosser Hychrome swivel rope socket, and 3½-inch by 35 feet Bridgeport drilling stem, weighing 1500 pounds.

Preliminary estimates as to the cost of drilling this test to the 8301-foot level are placed at about $128,665.50, or $15.50 per foot, being itemized per foot as follows: labor $6.00; miscellaneous expense $4.90; casing $4.10; and electric power 50 cents.



Section of Pecos County, showing relation between Taylor-Link and Rowan-Tong development

which has prorated its runs to a limit of 500 barrels daily from each operator. No production is credited to the Rowan-Tong pool because of the discovery well's being equipped with tubing, but it swabbed and flowed 140 barrels of oil during a 15-hour test ending Monday morning.

A pipe line connection and market outlet for the production of the Penn Oil Company and Atlantic Oil Producing Company's wildcat producer on the J. B. Bennett land, Ward County, is to be provided this week by the Atlantic Pipe Line Company through the construction of a three-mile six-inch lateral line from its Shipley pool carrier. This well swabbed 55 barrels of oil September 29 at a total depth of 2610 feet, having exhausted upper water, and is to be given a shot before placing on pump. In the Monahans field, Gulf Production Company's Hutchings 2 is flowing 172 barrels of oil daily at a total depth of 3227 feet, and is also making one-half bailer sulphur water per hour from 3218-25 feet. The company has established the water level on the north and south ends of its producing area. On the east edge of the Monahans field, Continental Oil Company's Sealy 2 developed 2500 feet of salt water at 3285-93 feet, with some oil in the hole at a total depth of 3304 feet.

The Glasscock County extension of the Settles field scored its largest producer last week when the Schermerhorn Oil Company's Phillips 1, an inside location, pumped 1700 barrels of clean oil from lime at 2151-2291 feet. The Sun Oil Company's Phillips 1 was also completed in the same horizon, swabbing 40 barrels hourly. This area is rapidly gaining in field work, but production is restricted under the Howard-Glasscock County proration rules.

Gray County Shut Down Extension Conference

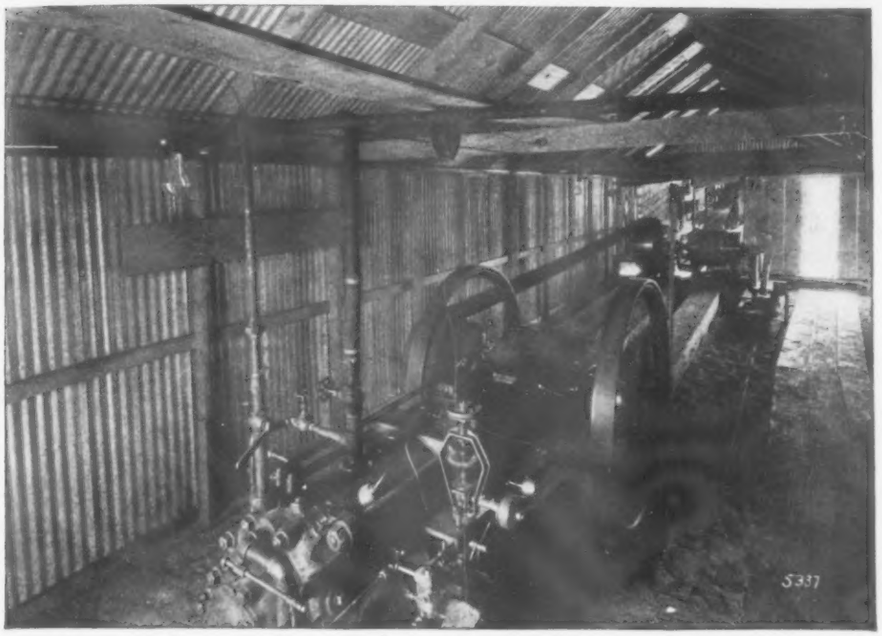
Pampa, Texas.—A conference of Gray County operators was held here October 1 to discuss advisability of a continuation of the voluntary shut-down agreements that have been in effect for the past month between adjoining lease owners. The meeting was presided over by H. M. Stalcup, vice-president in charge of production for Skelly Oil Company, and resulted in arrangements being terminated in most instances where tests have been shut down on top of the pay, as production and drilling operations in Gray County are reduced about 20 per cent. during September. However, this cut was largely due to groups of operators getting together in eliminating unnecessary offsets.

Although the overproduction situation in Gray County is rapidly clearing up due to natural decline of old wells, there remain sufficient undrilled locations in the prolific areas to reverse the situation. The operators plan to hold another meeting at Pampa, October 13.

The major companies as a whole have taken no active part in these meetings, but have representatives attend them as listeners. The latter stood in the way of a widespread shutdown being put into effect early in September, when production greatly exceeded facilities and market demand.

Magnolia Petroleum Company's Wright 1, located on the north end of the Pampa-Lefors flush area, is to remain shut down on top of the pay for 30 days, as an agreement with royalty owners was recently obtained to postpone completion. Seven offsets and nearby tests are to be held back until the above test is drilled in.

FRANKLIN VALVELESS OIL AND GAS ENGINES



Facts Are the Yard Stick of Value

After all it isn't talk but actual facts that tell you how good a drilling engine is—here are some facts—

J. R. Robertson of Wichita, Kansas, owns and operates two new OF 80 H.P. Oil Drilling Engines and two BG Clutches.

The engine shown is on its second location at Creson No. 1, ¾ of a mile north of Valley Center. On this engine's first well they set 255 ft. of 15″ pipe, 1370 ft. of 12″ pipe, 2433 ft. of 10″ pipe, 2700 ft. of 8″ pipe and 3200 ft. of 6″ pipe, completing the well at 3466 ft. The well was started February 3rd and finished April 12th—actual drilling time not recorded. The fuel used was distillate 38-40 gravity. The average consumption was 35 gallons per 24 hours. At present Robertson's two engines are handling 9 inch balers 60 ft. long in ten inch holes.

Robertson says in a letter to us—"We have found this equipment to be very satisfactory for cable tool drilling, easy on belts and wire lines, also very economical on fuel and lubricating oils. Up to the present time we haven't spent a single penny for repairs on these outfits."

Franklin Valveless Engine Company
Franklin, Pa.

PRICES— 40 H.P. Type OF Franklin, including water circulating pump and pulley. $1550 F. O. B. Franklin
50 H.P. Type OF Franklin, including water circulating pump and pulley. $2050 F. O. B. Franklin
80 H.P. Type OF Franklin, including water circulating pump, pulley and air starting equipment. $3200 F. O. B. Franklin

NOTE—Type OF is readily converted into type OG for gas fuelization.

Some of the Franklin OF Good Points

Enclosed type
Low Fuel consumption
100% inter-changeability
Simplicity

Piston rod is fitted with metallic packing which never needs adjusting or replacing

Every spring exposed

Complete simplicity with practically no adjustment

In case of belt breakage engine automatically stops

Fuel pump driven by eccentric running in oil bath

Bearings are removable and reversible

Only standard threads used. No special wrenches required

Cylinder has 3 point, forced feed lubrication

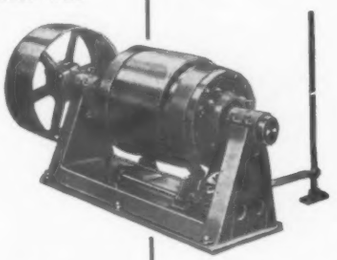
Balance of lubrication is splash feed

Pistons are air cooled

All nuts subject to vibration are castillated and fastened with cotter pins

Most economical to operate in fuel, lubricant, water and repairs

Easy to start.



Type BG Clutch for Cable Tool Drilling or Pumping

A vast improvement over the former type of clutches.

Driven from pulley on engine. Permits the use of a larger diameter pulley and makes possible a slower clutch speed. Operates by hand lever on derrick.

Construction and design prevent Reverse Clutch Troubles.

PRICE—$1200.00 F. O. B. Franklin, Penna.

Distributed by

OIL WELL SUPPLY COMPANY

Branches in All Oil Fields

Gulf Coast Field Developments

JACK LOGAN, *Staff Representative, Houston, Texas*

Barbers Hill Semi-Wildcat Test Showing for Production

Houston.—Sinclair Oil & Gas Company's Wilburn 1, a semi-wildcat, which will more or less prove up a wide stretch along the east flank of Barbers Hill dome if it comes in a producer, drilled into the oil sand of that side of the field at 5115 feet October 1, hitting it a little higher than it was found in the large producers to the north and to the south. The Sinclair well is about mid-way between the group of deep wells on the north end of the east flank and the group on the south end of the east flank, including those of Republic Production Company.

Production of the Barbers Hill field has slightly declined, and is a little less than 20,000 barrels daily. However, there are 15 wells in the field drilling around 5000 feet or deeper, and consequently numerous completions are due in the field within the next week or two.

Humphreys Corporation's Kirby A-8, deep test on the northwest flank of the field, and a virtual wildcat, is fishing for seven fourbles of drill pipe; the bottom of the hole is at 6440 feet. Mills Bennett Production Company's E. W. Barber 1 is drilling at 5547 feet in shale.

On the south flank Yount-Lee Oil Company's Chambers County Agricultural Association 8 is pulling screen and liner at 4556 feet.

Humphreys Corporation's Kirby H-4 on the north end of the east flank is drilling lime at 4751 feet; Kirby H-5 is drilling shale and lime at 3876 feet; Kirby H-6 is drilling shale at 2441 feet; Kirby H-7 is drilling sand and lime at 1771 feet; and Kirby C-2 is drilling shale and lime at 1743 feet. Rexal Oil Company's McLean 3 in the same section of the field is bailing at 5223 feet; and Mills Bennett Production Company's Smith 3 is drilling sand and lime at 4886 feet.

Along the east flank of the dome Moody Corporation and Humphreys Corporation are drilling shale at 4559 feet in Collier-Hooks 1, and in No. 2 on the same lease they are drilling sand at 3271 feet. Yount-Lee Oil Company's Kirby 1, east of present production and farther off the dome, is coring sand at 6866 feet. That company's Woodward 2 is waiting on cement to set around casing at 5254 feet, and Woodward 3 is drilling shale and lime at 2369 feet. Sun Oil Company's Amanda McKinney 1 has an oil show in sandy shale at 5346 feet; McKinney 2 is in oil sand at 5429 feet; Wilburn Fee 1 is setting casing at 5400 feet over oil showing; and J. Wilburn 1 is drilling shale at 3095 feet. Mille Bennett Production Company's G. W. Collier 1, located 1000 feet from production, to the southwest, has a slight show of oil in sandy shale at 5441 feet. Sinclair Oil & Gas Company's McKinney 1 is drilling sandy shale at 5397 feet, and its Wilburn 1 is in oil sand at 5115 feet. The Texas Company is drilling shale at 1700 feet in Wilburn 1, and is rigging up Wilburn 2, Wilburn 3 and Lawrence 1. E. B. McDaniels et al are also rigging up Woodward 3.

Shell is Drilling Below 7000 Feet on Two Wells

Houston.—Shell Petroleum Corporation is drilling below 7000 feet in two Gulf Coast tests, one in Louisiana and the other in Texas. The former is at Lockport. It is Miller 1, located about three-quarters of a mile west of nearest production. On September 27 that well was drilling at 7138 feet in sandy shale. Casing in the hole includes 1463 feet of 12½-inch (50 pound), 5082 feet of 9⅝-inch (40 pound), and 6662 feet of 6⅝-inch (28 pound).

The deep well in the Texas division of the Gulf Coast is C. T. Heisig 1, located two miles north of Hamshire, Jefferson County. It is drilling sandy shale at 7113 feet. Casing in the hole consists of 1462 feet of 12½-inch (50-pound), and 5341 feet of 9⅝-inch (40-pound). This is the first test on a geophysical prospect found last year.

Two Producers Boost Hackberry Yield

Houston.—Three tests were completed during the past week on Old Hackberry dome, Cameron Parish, Louisiana, including one failure and two good oil producers.

Both of the producers were Sunshine Oil Corporation wells. Porter Ellender 3, came in flowing 1000 barrels of 20.9 gravity crude, 88 temperature, daily. One joint of screen was set at a total depth of 3319 feet. This well is in Section 27-12s-10w, on the southeast edge of the field. A few days earlier the Sunshine Oil Corporation had completed Porter Ellender 2 on the same lease for 1000 barrels daily of the same grade of oil at 3303 feet.

The failure of the week at Hackberry was Yount-Lee Oil Company's School Lands 9, located on the north flank of the dome in Section 16-12s-10w. The bottom of the well was in heaving shale, and abandonment followed sticking of the drill stem.

Daily production at Old Hackberry during the week ending September 28 was 2850 barrels, and it will probably be considerably over 3000 barrels daily during the present week.

Yount-Lee Oil Company's Carter & Sweeney 1, located on the eastern flank of Old Hackberry dome, has set seven-inch casing over an oil-showing sand at 3320-30 feet; and in No. 1 on Mrs. F. Lacy's land in Section 27-12s-10w, on the east edge of the field, is drilling rock at 3000 feet.

Harris County Test Is Abandoned

Houston.—Humble Oil & Refining Company has abandoned its wildcat test, O. P. Woodburn 1, located in the August Whitlock Survey, about two miles south of Genoa, in Harris County. The test was drilled following torsion balance work. A small gas showing was reported in Woodburn 1 around 4650 feet.

Humble Oil & Refining Company has made location for another test, Woodburn 2, at a point 1680 feet east and 1700 feet north of the one that has been abandoned, the location of the new test being given as 3000 feet east of the west line and 150 feet south of the north line of the O. P. Woodburn 633-acre tract, and of the survey in which the tract is located.

Indications of a salt dome were found in this area by torsion balance in 1928 by the North American Exploration Company for H. C. Cockburn, who obtained a block of leases and later turned them to Humble Oil & Refining Company for development.

Evangeline

Houston.—Kathleen Oil Company's Syndicate Clement 1 in the Evangeline field, Acadia Parish, Louisiana, has been completed as a pumping well at 3990 feet. Initial production was 600 barrels, 50 per cent b. s. and water. This well came in flowing 300 barrels daily several weeks ago, but later sanded up.

Yount-Lee Oil Company is drilling in its two deep tests on the flank of this field. Its Houssiere-Latrielle 7 is down 6450 feet in shale and lime, and Crowley Oil & Mineral Company 4 is in shale at 7810 feet.

Second Hankamer Field Well Good Producer

Houston.—Gulf Production Company on September 27 completed Boyt 2 as the second producer of the Hankamer field, Liberty County. Two joints of screen were set at a total depth of 2925 feet, and the well came in flowing 500 barrels daily. It was shut in.

This well on August 26 blew out while coming out of the hole with a core from 3692 feet. The derrick was wrecked. For a while the well was blowing wild, yielding around 30 million feet of gas and 15,000 barrels of salt water daily. It was finally brought under control, and the hole was plugged back.

Gulf Production Company is operating two rigs in the Hankamer field, the other being in use on Weiser 1, now drilling gumbo at 2150 feet.

The discovery well of the field, Gulf Production Company's Boyt 1, came in June 6, 1929, flowing 700 barrels 20 gravity crude daily when two joints of screen had been set at 2674 feet.

Indications of this field were obtained in 1928 by a seismograph crew of the Gulf Production Company, and the first test drilled following the geophysical work was a producer—Boyt 1.

To Test Old Prospect In Cameron Parish

Houston.—Yount-Lee Oil Company is drilling shale at 2450 feet in W. H. Stark 1, wildcat test in the Johnsons Bayou area, Cameron Parish, Louisiana. This is the first test drilled in that district for several years. It is located in Section 1-15s-15w.

The Johnsons Bayou area is an old prospect. It is located across Sabine Lake, west of Port Arthur, Texas. Wildcatting efforts there in the past included Peterson 1, a test in Section 6-15s-14w drilled jointly by Humble Oil & Refining Company and Sun Oil Company. It was abandoned at 5287 feet.

Deepest Well Extends Refugio Gas Field

Houston.—Mission Drilling Company's O'Brien 1 at Refugio came in September 26 as the deepest oil producer of that field, casing having been set over a sand at 5518-23 feet. It was bailed in as a high pressure gas well spraying about 30 barrels of oil daily, with 1900 pounds working pressure through a three-sixteenths-inch choke. The following day it showed pressure of 1925 pounds flowing through three-sixteenths-inch and one-quarter-inch chokes, and was producing 90 barrels of oil, 32 gravity at 96 degrees temperature, or 28 gravity at 60 degrees.

This well is located almost one mile east of the proved area of the Refugio field, and is flowing from a new producing horizon which indicates greatly augmented reserves of gas and possibly of oil.

The Refugio field now comprises about 40 producing oil wells with a total daily production of approximately 7500 barrels, and 50 gas wells with daily open flow estimated by the Texas Public Service Commission at 2,450,000,000 cubic feet. The total gas reserve in the field is estimated at 300,000,000,000 cubic feet.

Neuces County Gets Large Gas Well

Houston.—South Texas Production Company, a subsidiary of the United Gas Company, has completed Kerr 9 in the Agua Dulce gas field, western Nueces County, as a 70-million foot gas well at 1981 feet, with rock pressure of 865 pounds.

The United Gas Company has contracted with Magnolia Pipe Line Company for delivery of Agua Dulce production to a distributing subsidiary of the United Gas Company at San Antonio through the recently completed line of Magnolia Pipe Line Company out of the Laredo district to San Antonio. The line connecting the Agua Dulce field with the Magnolia trunk line has been completed and is now being tested.

Aside from this new line, the only outlet at present for Agua Dulce gas is a two-inch line of the Houston Oil Company, which supplies domestic consumers at the towns of Agua Dulce and Alice.

The Agua Dulce discovery well was completed late in 1928.

Mississippi Wildcats

Jackson, Miss.—Home Oil Producing Corporation's Rainey No. 1, Section 13-5-1, Rankin County, Mississippi, has had surface casing of 12½-inch size set at 225 feet.

Advices from Meridian state that Meridian Natural Gas Company's Houser 1, Section 33-8-18, Lauderdale County, is shut down in white gumbo at 2410 feet. Lauderdale Oil and Gas Company's Lackey 1, Section 2-7-16, Lauderdale County, is coring below 2700 feet. Four feet of sand was cored from 2736 to 2740 feet. A foot below this a hard formation not immediately identified was encountered.

Reports reaching here of the leasing of 300,000 acres in Yazoo County, in the Mississippi delta, state that the Magnolia Petroleum Company, The Texas Company and Amerada Petroleum Company are backing the blocking of the acreage. A location for the first well on this tract is expected soon near Yazoo City.

Jefferson County

Houston.—Vacuum Oil Company's Broussard & Hebert 1, wildcat test on a torsion balance prospect nine miles southeast of Fannett, Jefferson County, is drilling water sand at 4643 feet. This is the first test of the area.

Pettus Gas Field Well Re-Cement Casing

Houston.—Mission Drilling Company is re-cementing 8¼-inch casing over the 2705-21-foot gas sand in Ray 4, located in the Pettus gas field, Bee-Goliad Counties. The same company is drilling at 4500 feet in Ray 3, having decided to pass up the 4054-72-foot sand in which perforated pipe was set last week, resulting in heading up of small volumes of gas to 310 pounds pressure every half-hour.

Houston Oil Company, also interested in the area, is drilling M. M. McKinney 1, its first test there. That well is located on the L. C. Randolph survey, south of the producers that have been completed.

Zoch et al are also drilling in the same area, being down 1585 feet in gumbo in Kaufman 1, located on the Goliad County side of the area.

Manford Pool Well Increases Flow

Luling, Texas.—Installation of a larger choke on the Simms Oil Company and Penn Oil Company's Manford 1, which opened the Manford pool, Guadalupe County, August 28, caused the flow to increase from 275 to 1145 barrels daily. This well is flowing from a crevice at a total depth of 2418 feet via a five-eighths-inch choke, as compared to a one-quarter-inch choke that was used previously, and the oil tests 78° temperature, 37.5 gravity. The Simms Oil Company is gathering and shipping the production in tank cars to its Dallas refinery. This is the largest discovery well in the Luling district.

Two offsets to this wildcat producer failed to encounter the crevice, and are drilling beyond the expected producing horizon. Manford 2, located on the discovery 88.91-acre lease and 300 feet southwest of the producer, was drilling Austin chalk formation September 30 at 2778 feet. Sun Oil Company and Empire Gas & Fuel Company's Manford 1, an east offset to the producer, was in Buda lime at 2882 feet.

Ray-Dawes Extends Field's Limits

Shreveport.—Ray-Dawes Drilling Company's Hunter 3, SE SW Section 9-19-14, almost a quarter of a mile east of the same company's Hunter 2, SW SW Section 9-19-14, Monday was flowing at the rate of 200 barrels of oil daily after two and a half inch tubing with packer had been set in the hole, total depth of which is 2440 feet. The well extends production eastward. A southern offset Standard Oil Company of Louisiana's School Board 2, NE NW Section 16-19-14, bailed dry with a show of oil at 2441 feet and is being cored ahead. Standard's School Board 1, NW NW Section 16-19-14, deepened six feet to 2436 feet, continues to mount in yield, making 3331 barrels for the 24 hours ending at 7 a. m. Monday.

PROBLEMS and PROGRESS
in the
Protection of Underground Pipe Lines
Against Corrosion*

By DR. GORDON N. SCOTT

A. P. I. Research Associate with the United States Bureau of Standards, Washington, D. C.

SEVERAL years ago the American Petroleum Institute appointed a committee on corrosion. The first work of the committee was to collect data from Institute members on corrosion. Later a Research Associate was employed to carry on a study of corrosion.. His work has consisted largely of investigations of the conditions of protective coatings applied to oil lines. Results of this work indicate that in many instances methods of application of coatings have been inefficient and wasteful. The primary cause of the failure of a large part of the coatings examined was identified with soil action. The relative merits of laboratory studies, field tests and field inspections of coatings are discussed. Pipe line protection is shown to be an economic problem and the method of solving the problem is outlined.

WIDESPREAD interest in problems of corrosion in the petroleum industry found early expression in group sessions at the annual meetings of the Institute and culminated in the formation of a general committee on corrosion.

The modus operandi of this committee in the early months of its existence was not well defined, but its purpose was specific. Two logical sub-divisions in the general committee segregated the problems into those appertaining to refinery and marine corrosion, and those allied to pipe line and production corrosion. The specific purpose, namely, the reduction of the enormous annual toll exacted by corrorosion and enlarged by wasteful methods of combating corrosion, could best be carried out as a start by canvassing the industry for its experience and correlating the information thus gained.

To this end two important steps were taken. In the first place a corrosion record form, quite general in character and yet applicable to all phases of corrosion, was drafted and circulated for the purpose of assembling existing knowledge of corrosion as it occurs in the industry and of the methods which have been employed to combat it. The corrosion committee was of necessity limited in its membership, but the appointment of contact representatives from organizations engaged in producing, transporting or refining petroleum products, served to enlarge the sphere of the corrosion committee's activities. The first active function of these contact representatives was, thus, supplying the corrosion committee with such information on corrosion with respect to the existence, severity and combative measures used as fell within the realm of their experience. More recently regional contact conferences have been arranged for the dual purpose of bringing recent developments to the attention of those contact representatives, and to afford the opportunity for an intimate exchange of ideas. In the second place, a full-time field investigator was employed and assigned as a Research Associate at the National Bureau of Standards to taken part in the work of the Bureau of Standards on corrosion and to aid the Corrosion Committee in its work.

Scope of Work

It became clear in the early stages of the first field investigation of the research associate that the scope of the corrosion committee's activities was entirely too large for a single investigator, and since the prospects of speedily accomplishing something definite were greater in the case of pipe line corrosion, the research associate's activities were restricted to that phase of the problem. The work has, therefore, been closely associated with that of a Sub-Committee on Production and Pipe Line Corrosion of the General Committee.

A large part of the preliminary work consisted of the critical examination of existing coatings on pipe lines with the general purpose of defining the status of pipe line coating practice. Two important developments resulted from this early work. It appeared, in the first place, that in many instances methods of application were both inefficient and wasteful. In the second place, the primary cause of the failure of a large part of the coatings commonly used, was identical with soil action in its various ramifications.

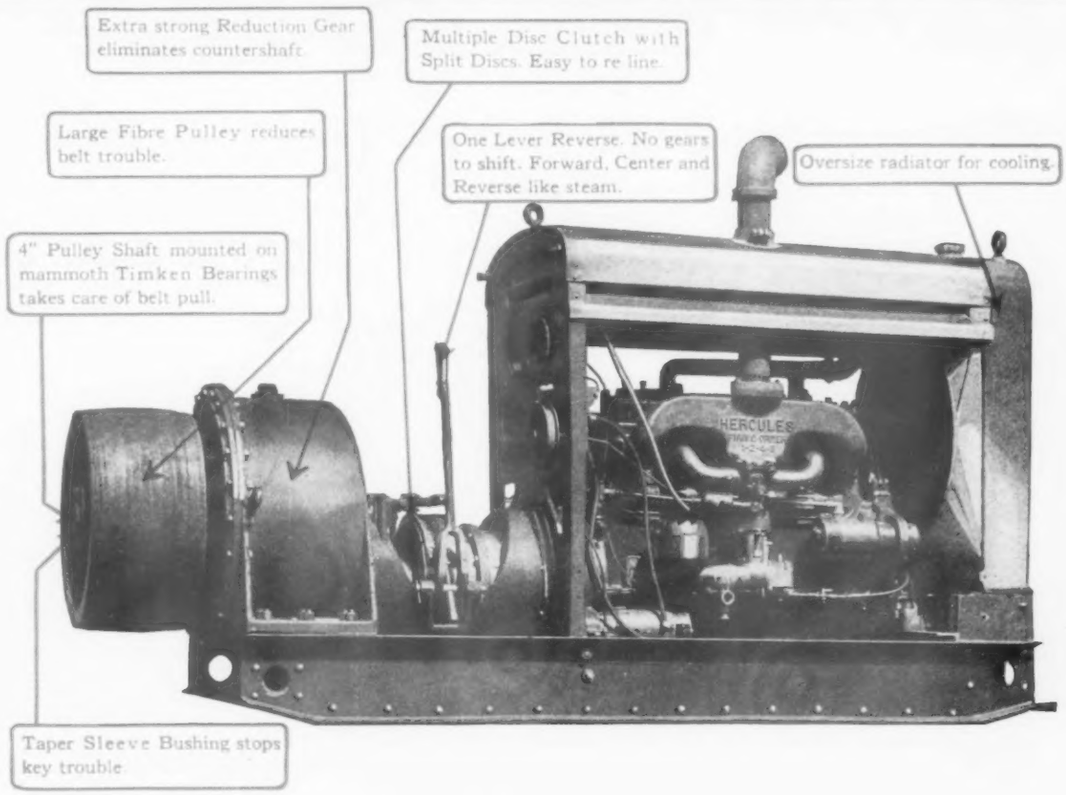
With the aid of the members of the Sub-Committee on Production and Pipe Line Corrosion and the manufacturers involved, existing knowledge pertaining to the proper methods of application of hot bituminous coatings was collected, assimilated and formulated into a good practice statement.[1]

Numerous questions have arisen as a result of the observation of the disrupting effect of soil action on coatings to which the data of the preliminary work could not supply an answer. The geographical extent and importance of soil action; its relation to soil texture, topography and drainage; and the efficacy of the numerous and diversified coatings in withstanding the disruptive effects of the soil, were questions to which, it appeared, field inspections could supply an answer.

Field inspections of protective coatings in pipe lines, while serving a very useful purpose, leave much to be desired in the way of accurate data. The variables affecting the behavior of protective coatings are large in number and complicate the interpretation of field accumulated information. Even in practical coating tests, many of the variables cannot be controlled. The American Gas Association has instigated coated-nipple tests and these are being conducted by the Bureau of Standards through the research associate of the American Gas Association. The purpose of these tests is to compare under a variety of known soil conditions the behavior of a number of practical and proprietary coatings and to obtain basic information which will be of value in devising dependable experimental methods for predicating the behavior of coatings. The uncertainties as to methods of application and material specifications in existing line treatments restricted the value

*Paper read before Texas-Louisiana-Arkansas section of the American Petroleum Institute division of Development and Production Engineering, Galveston meeting, September, 1929.

[1]A. P. I. Code of Good Practice in the application of Protective Coatings to Underground Pipe Lines—Tentative Code No. 1—The Field Application of Hot Bituminous Coatings.


Extra strong Reduction Gear eliminates countershaft.
Multiple Disc Clutch with Split Discs. Easy to re line.
Large Fibre Pulley reduces belt trouble.
One Lever Reverse. No gears to shift. Forward, Center and Reverse like steam.
Oversize radiator for cooling.
4" Pulley Shaft mounted on mammoth Timken Bearings takes care of belt pull.
HERCULES
Taper Sleeve Bushing stops key trouble.

Built for Standard Rig, Rotary or Portable Outfits

Belts direct to Band Wheel (no countershaft to move and rig up) . . . operates on Gasoline or Natural Gas . . . built in 2 sizes, developing 90 and 105 H.P. respectively at 1000 r.p.m. . . . instantaneous reverse without shifting gears, etc. . . . is a complete, compact unit, easy to move . . . furnished in skid type or mounted on wheels . . . built for heavy oil country duty and field proven.

Send the coupon today for complete description and prices.

THE STAR DRILLING MACHINE COMPANY—Akron, Ohio

Branches at:
Chanute, Kans.; Wichita Falls, Texas; Long Beach, Calif.; Portland, Ore.
Export Office: 2 Rector St., New York City, U. S. A.

Star Drilling Machine Co.
Nearest Branch.

Without obligation please send me prices and your bulletin No. 29 illustrating and describing your Heavy Duty drilling engines.

Name .....

Address .....

Oil Weekly, 9-27-29

STAR 4-Cyl. Heavy Duty Drilling Engines

of observations on them for the purpose described above. On the other hand there is immediately available on existing lines a wealth of information regarding the practical aspects of coating performances. For example, a knowledge of the probable behavior of a given practical field-applied coating under various actual service conditions cannot be more adequately nor speedily obtained than from systematic and regular inspections of that coating in a specific manner. Statistically, field inspections constitute a powerful and convincing source of practical information.

Performance Best Test

It is generally conceded among competent observers, that at present a coating's worth can only be determined from its actual performance under service conditions. Numerous factors are encountered on operating lines which are not met with in buried nipples. Coating tests on operating lines have been proposed by the Sub-Committee on Production and Pipe Line Corrosion. The so-called "three cornered tests," in which it is proposed that the Bureau of Standards join with the manufacturers and consumers, have met with considerable favorable comment in the industry. The purpose of this test program is the accumulation of basic information which will lead to the development of more adequate coatings. This information, being obtained by co-operative effort, would be made available for the benefit of the whole industry.

Detailed plans for conducting these proposed tests have not been worked out. It has been suggested, however, that certain general rules of procedure be established under which any organizations desiring to do so may conduct tests of practical coatings as a part of this general scheme. The procedure would presumably provide that the methods used and the results obtained be observed by suitable representatives of the three groups; that is, manufacturers and users of coatings and Bureau of Standards acting with the assistance of technical men representing the Institute. The Bureau of Standards would serve as a clearing house for information regarding these tests, as well as other information pertaining to the behavior of protective coatings, and would assist in preparing for publication such results as might be established to the satisfaction of the three interests represented. The advantages to be gained by this broader cooperation are obvious. The plan would avoid much duplication of work which may otherwise take place, and would give the greatest freedom for the development of experimental coatings. By some such plan the industry might meet its immediate practical problems in the light of the best information now at hand, and at the same time make some systematic progress in the accumulation of more adequate knowledge.

The extent to which it pays to protect underground pipe lines against corrosion is of course a problem in economics. Nevertheless, for the solution of this problem certain information is needed which is almost entirely lacking at present. In order to determine when, where and with what to protect a pipe line the answers, or approximate answers, to two fundamental questions are necessary. In the first place, we need to know how corrosive a given soil is, or from the practical point of view, how long, say a standard-wall eight-inch pipe, would last in the given soil. In the second place, we need to know what prolongation in pipe life can be expected from a selected protective coating.

Corrosive Soils

It has long been appreciated that soils vary widely in their corrosive qualities. Some knowledge of a soil's corrosiveness is obtained from past experience along a given right-of-way, particularly when complete records have been kept on pit-hole leaks and pipe replacements. A variety of laboratory methods have been devised to predetermine the quality of a given soil, but the correlation of laboratory indices of corrosion and corrosion on pipe lines as actually experienced has not been sufficiently complete or accurate to make the laboratory methods dependable for determining a soil's corrosiveness in practice. The question arises in the study of soil qualities as to whether or not a given soil, having in one locality a definite and known corrosiveness, would have the same corrosive quality in another locality. Good use could be made of the soil maps issued by the Bureau of Soils, Department of Agriculture, if the corrosiveness of the soils closely followed the Bureau of Soils' classification. Many accidental factors such as soil waters from adjacent oil wells, soil soured from oil which has leaked from the lines, drainage waters from cinders on a railroad right-of-way, etc., add to the local corrosiveness and exist between corrosion and soil characteristics. Experience indicates that a soil having a high average moisture content is more corrosive than a similar soil havtend to mask any correlation which may ing a low moisture content, but the relation between soil moisture and corrosion has not been definitely determined. Similarly a soil high in total available acid or soluble salts is more corrosive than soils low in the corresponding constituents. The almost limitless variation in the foregoing factors leads to a complexity in the problem such that no simple solution can be expected.

The problem is further complicated by the mechanical disrupting action of the soil which has been discovered in this work. Under some conditions this action may be so severe that the simpler type of protective coatings will be practically ruined, even when they show a satisfactory physical and chemical stability as determined by ordinary tests.

Correspondingly, laboratory methods of predetermining a coating's protective value have not as yet been satisfactorily correlated to the behavior of the coating on a pipe line, although less valuable coatings can be eliminated by laboratory methods. A pipe line operator should not expect indefinite protection of his line by the application of any of the more commonly used protective coatings. The pertinent question with reference to the behavior of protective coatings on pipe lines is, therefore, how much extension of life will be realized from the application of a given line treatment. An answer to this question, together with a knowledge of the life of bare pipe in a given soil, would determine whether the use of a coating is desirable, and if so, would lead to the economic selection of a coating.

If along a right-of-way the soil quality varies widely and the various coatings have definite limitations as to pipe life extension, it is reasonable to suppose that a minimum unit line maintenance charge would result from a "partial coating policy." The pipe in the relatively non-corrosive sections of the right-of-way might be left bare in order to offset the expense of elaborate and dependable treatments in the more corrosive sections.

Information derived from a number of sources indicates that the relation between pipe failure due to corrosion and wall thickness is far from linear. If a pipe of any wall thickness pits through in a given soil in a certain length of time there is good reason to expect that a pipe of double the wall thickness will not pit through in twice the length of time but will last far in excess of that. Here again is the necessity for an economic balance between cost and life. In this case, however, a knowledge of the soil quality (referred to standard eight-inch pipe) must be supplemented by a knowledge of the form of the corrosion curve for that soil.

To those who are interested in the protection of underground pipes against corrosion two suggestions are offered. The Bureau of Standards and the American Petroleum Institute have recently been engaged in collecting information pertinent to the problems discussed above. This information, for the most part, is available to the industry and advantage should be taken of such data as has been collected. If a protective coating has been applied to a line the behavior of the coating with time should be critically studied. Penetration of the coating, as evidenced by the appearance of rust or other indications of active corrosion, should be carefully followed. No better test of a protective coating exists than a practical application of that coating on a line.

The most important conclusion to be drawn at present, however, is that the indiscriminate use of protective coatings is likely not to be most economical. The second suggestion is, therefore, that realizing the importance and complexity of the problem, all elements in the industry should take an active interest in getting together more complete data which will help in combating the common enemy. No better test of a protective coating can be made than a practical application of that coating on a line, but it would be prohibitively expensive for each company separately to collect information regarding the many coatings offered. If, however, each important user of coatings would study its own coatings critically and all could bring their results together following either the scheme suggested above or some other plan, the economic benefits ought to be large and immediate.

Louisiana-Arkansas Field Notes

Two Dixie Wells Increase Flow When Deepened

SHREVEPORT.—While the Dixie field of Caddo Parish, Louisiana nine miles north of Shreveport, did not record a single new producer during the last week, deepening of two "dead" wells and their subsequent increase in production over their first initial production, kept the field in the limelight. Meantime, two eastern edge wells of the northeast part of the field are bailing with favorable showings of being good producers.

Ray-Dawes' Hunter 2, which was completed three-fourths of a mile northeast of former production, was one of the wells which had gone "dead" and was revived by deepening. After flowing for a month at the original level of 2423 feet it had dropped to 550 barrels of oil and then had ceased to flow. This was blamed on two large producers completed as offsets. The drill stem had also been left in the hole. However, when deepened 10 feet the well came back flowing 800 barrels which had risen to 2400 barrels daily at the close of last week.

Its southern offset at a distance of 660 feet, Standard Oil Company of Louisiana's School Board 1, NW NW Section 16-19-14, had been originally completed as a 366-barrel flowing well at 2430 feet, and was deepened to 2436 feet and started flowing at the rate of 1200 barrels daily September 22.

This had mounted to 3037 barrels September 28.

In SE SW Section 9-19-14, Ray-Dawes Drilling Company bailed Saturday at 2440 feet with a hole full of oil in Hunter 3. This well is a quarter of a mile east of the extension well. It had been bailed at 2435 feet with considerable oil but had refused to flow. Late Saturday operators were setting two and a half-inch tubing with packer in the well.

A quarter of a mile east of Standard Oil Company of Louisiana's School Board 1, NW NW Section 16-19-14, the same company late Saturday had bailed down 1500 feet in School Board 2, NE NW Section 16-19-14, and apparently is scheduled to complete a good producer. This well is a direct southern offset to Ray-Dawes Drilling Company's Hunter 3.

Two other wells in Dixie which are being watched with interest are S. T. Onyett Trustees Dixon 1, NW SW Section 10-19-14, a mile east of production, where operators are waiting on 6⅝-inch casing to set at 2382 feet; and Lide and Associates' Levee Board 1, NE NE Section 24-19-15, which is down to 2165 feet. This well is a mile west of production.

Lide and Associates' Levee Board 1 is half mile northeast of an old hole drilled three years ago by the Arkansas Natural Gas Corporation to a depth of 2840 feet. This well is reported to be seeping oil between the six and eight-inch casing around the Woodbine sand. It is two miles southeast of two old holes drilled several years ago by the Slattery interests on their Fee lands in Section 15-19-15, one of which is reported to have encountered six feet of sand just above the 2400-foot level. However, neither was a successful test.

Installation of standard rig is still under way at Lide and Associates' Hunter 1, NW NW Section 22-19-14, a mile southeast of Standard's School Board 1. Lide and Associates' well, whose total depth is 2468 feet, had 600 feet of oil in the hole when standardization started.

More than a mile southwest of production in the shallow Bellevue oil field of Bossier Parish, Harry Morgan and associates, whose Weatherbee 1, Section 21-19-11, blew in a fortnight ago in the Trinity at 1854 feet making considerable gas and much salt water, are experiencing trouble in the hole. They went out of the old hole at 390 feet and are drilling now at 1100 feet after being troubled in trying to set six-inch casing by the gas in the Nacatosh sand which is around 400 feet in that vicinity.

While standardizing R. L. Gay, Trustee's, Bowman-Hicks 4, Section 14-7-14, Sabine Parish, Louisiana, with total depth of 2350 feet in lime, has made several heads of oil, one of which approximated 75 barrels. This is the third producer of the Zwolle field and is 700 feet west of Bowman-Hicks 1, which has flowed since December 1 and is now making 125 barrels daily, two and a half times its initial yield. Gay is building derrick for Bowman-Hicks 5 in the same section, location having been announced this week. It is a southern offset to the discovery well. The same operator is below 500 feet in Bowman-Hicks A-1, Section 34-8-12, Sabine Parish, several miles southeast of production. This is the first of two deep tests to be drilled around a hamlet called Loring. Twenty shallow tests are also planned in that vicinity by Gay.

Tunica Petroleum Company added another small pumper in the shallow field of White Sulphur, LaSalle Parish, putting L. & A. 49, Section 17-7-2e, on the beam at 822 feet. The well is making 20 barrels daily. Another semi-wildcat producer completed in North Louisiana was Delaware-Louisiana Development Company's Bolinger 4, Section 38-23-11, Bossier Parish, southeast of the old Bartlesville gas area, which was completed at 3170 feet making 50 barrels of oil. It was in this vicinity that several producers were added in 1923 before Cartersville was opened. These producers were Pine Woods Lumber Company's holdings. The wells after several years became depleted and no others were added. There have been several producers in that area added, however, in recent months.

North Smackover Active

After drilling to 3808 feet, W. G. Gray, Trustee, abandoned Snyder 1, Section 15-16-6w, Bienville Parish as a dry hole. This test was in the vicinity of the town of Ringgold, in the southern part of the parish.

Drilling activity in South Arkansas continues to center in the north Smackover field. There are 36 operations under way in Smackover, 16 of them being in Sections 26-27-32-33 and 35-15-15, caused by a revival of interest in Nacatosh sand activity in that part of the field. The Nacatosh there is found around the 1900-2000-foot level. Six miles to the west of this play there is also a revival of Nacatosh sand drilling noted, especially in Section 34 and 35-15-16.

Seven new locations were announced

News From Rocky Mountain Fields

during the week in South Arkansas: three are for locations in the northeast part of Smackover, two being in Section 34-15-15, and the third in Section 27-15-15. There were also four workovers announced in Smackover and two other locations for that field, the latter being in Union County. The two wildcat locations announced were Arkansas Drilling Company's Morris 1, SE SE Section 17-19-13, where derrick is being built, and Shell Petroleum Company's Carroll 1, NE SW Section 19-18-16, both in Union County.

J. W. Clark, Trustee, has spudded in and is drilling at 1350 feet in Wise 1, NE SW Section 30-23-9w. Webster Parish, Louisiana, between Shongaloo and Haynesville. Another wildcat test for North Louisiana is Benson Oil and Gas Company's Wise 1, SW NE Section 4-10-13, DeSoto Parish, Spider district, where derrick is being built.

Just across the Louisiana-Texas line from Caddo Parish, McRitchie and associates have abandoned Dean 1, in the Craft survey of Harrison County, which tested salt water at total depth of 2804 feet.

North Louisiana's deepest test, Magnolia Petroleum Company's McCook and Hibbler 1, Section 22-21-10, Webster Parish, is drilling at 6852 feet.

In Union County, Arkansas, O. W. Estes has encountered a good show of oil and gas in his Felsenthal 1, Section 2-18-15, in which he ran testing tool from 2112 to 2151 feet. After letting the tool set for 15 minutes on bottom, he obtained a good show of gas and six joints of mud and oil. A core from 2151 to 2158 was sand and sandy shale with a show of oil. He plans to set casing for a test. This is about the same level as a similar formation obtained in Gulf Refining Company's Rose L. Cook 1, Section 1-18-15.

Board Visits Salt Creek

Casper, Wyoming.—All of the members of the Wyoming State Land Board made a personal inspection last week of Section 36, the famous school section of the Salt Creek field. Governor Emerson, president of the board, said that he was satisfied that the Midwest Refining Company was operating the section in the best manner possible for the fullest recovery of oil to the best benefit of the State of Wyoming. The section is to be leased this week, for another 5-year peiod, and considerable competition is expected.

Two Alberta Completions

Calgary, Alberta, Canada.—Completion of two important wells was reported in the week in Alberta. On September 19, the Fuego Oil Company brought in a 35,000,000 cubic foot gas well at Oyen, near the boundary between Alberta and Saskatchewan and 145 miles southeast of Calgary. Production was found at 3135 feet. Several Calgary oil men made the trip to the new field by airplane. On their return they reported that the well was spraying some oil while flowing open and waiting for equipment to shut it in.

On September 21, the Imperial Oil Company, Ltd., completed a well on its Associated Oil Company lease in the Turner Valley field with an open flow of 20,000,000 cubic feet of gas in lime with the hole bottomed at 5410 feet. It is estimated that it will produce 800 barrels of naphtha daily as soon as separators can be installed. The well blew in while the crew was fishing for lost tools.

Jones Interests to Drill Cane Creek Dome

Salt Lake City.—The B. O. Jones interests of Denver, who held the original contracts on the Colorado river structuresfi southeastern Utah, have announced that they will drill a test on the Cane Creek dome, to be located about two hundred feet south of the Fank Shafer discovery well. It will be financed by Denver and Salt Lake City capital. There have been three or four wells drilled on this structure by interests identified with the Midwest Refining Company, but none developed commercial production.

Baxter Basin Field

Rock Springs, Wyoming.—Another entry into the operations in the Baxter Basin field is the Montacal-Associated interests, which will drill a test to the Sundance sand on the slopes of Quakenasp Mountain in Township 16 north, range 104 west. Several carloads of material have arrived, and the test is to be drilled at once. This company drilled a well on the same location several years ago, and at that time developed a flow of 33,000,000 cubic feet of gas. On drilling deeper the hole was lost.

Discriminatory Rate Is Claimed in Complaint

Cheyenne, Wyoming.—The Wyoming Public Service ommission recently filed a complaint with Interstate Commerce Commission which charges that 15 railroads maintain discriminatory freight rates on oil shipped from Wyoming to points which are also served by Mid-Continent fields.

The complaint charges that for the transportation of like traffic the defendant carriers contemporaneously maintain interstate rates and chaarges on petroleum products produced from points in the Mid-Continent fields to markets in North and South Dakota, Minnesota, Montana, Nebraska, and Iowa, which makes rates much lower than those based upon rates from Wyoming fields to the same points.

Butler Valley Structure

Salt Lake City.—The Utah Oil Refining Company will drill a test on the Butler Valley structure, Southwestern Utah, in Kane County. The Midwest Refining Company will drill the well for the account of its subsidiary, the Utah Oil Refining Company—both companies holding jointly the block of 15,000 acres on the structure. The Shinarump sand is the first objective at about 2500 feet.

Mesa County, Colorado

Denver.—The Argo Oil Company has recently announuced that it has taken over the No. 1 Hoel test in Mesa County, Colorado, belonging to the Highline Oil Company, and that the well will be drilled to the Sundance, expected at 3300 feet, unless commercial production should be obtained above that depth. The well has been standing at 2700 feet in the Dakota sand. It is about two miles from Sprague and 34 miles from Grand Junction, Colorado. Previous tests drilled in the neighborhood have developed considerable gas, and a series of core drilling tests would seem to indicate the advisability of giving the structure a thorough test.

New Mexico Most Active Rocky Mountain Area

Artesia, New Mexico. — The southeastern part of New Mexico is the most active region in the Rocky Mountain district; six new locations were announced in Lea and Eddy Counties last week. There are now more than 35 wells drilling in Lea County, and the wildcat areas in Eddy County are becoming increasingly attractive.

The Midwest Refining Company's No. 24 Leonard Leech is being completed on the Hobbs High structure. This is another extension to this interesting field.

THERE IS NO ECONOMICAL SUBSTITUTE FOR QUALITY

Copyright 1920 Axelson Machine Company Los Angeles

A

Shadows of Quality

....NEVER A COMPROMISE IN QUALITY IN THE AXELSON PLANTS... EVERY PART IS FULLY STANDARDIZED

THE *Interchangeable* PUMP

A PRODUCT OF AXELSON

See EXHIBIT *at* TULSA EXPOSITION

News From California Fields

BRAD MILLS, *Staff Representative, Los Angeles, California*

Kettleman Hills Well Sets High Gravity Oil Production Record

COALINGA, Calif. — Eclipsing all former records for extremely light oil production, Continental Oil Company's Elliott 12-8 in the Kettleman Hills field is producing 7000 barrels of 61 gravity oil and 140 million cubic feet of gas after flowing several days under partial control. Previous to the capping of the well, however, it blew wild for more than two weeks. Production is coming through four flow lines, with a fifth being installed to handle the oil and gas now blowing into the air. It is difficult to estimate the quantity of oil being wasted, but it is at least 300 barrels. The four flow lines lead from the master gate and the fifth is being connected onto the top of the valve. The oil shows a negligible cut and contains about 86 per cent gasoline.

Elliott 12-8 was drilled to 6876 feet, following a final water shutoff over the oil sand at 5960 feet. The flow is coming from open hole. When the well blew out during the first production test, the tubing was blown from the hole and could not be replaced. The fact that practically no water is coming from the hole proves that the sand will not require a perforated string during the high pressure period.

Skeptics Disillusioned

Operators who have been skeptical concerning the importance of the Kettleman Hills field have been completely won over by the action of the Continental Oil Company's Elliott 12-8. When the Milham Exploration company brought its discovery well under control a year ago and production ran about 4500 barrels of 60 gravity oil, the well was branded a freak by many who could not visualize such a producer. As the well kept flowing, however, there was a tendency to hedge and the skeptics have completely run to cover.

The government has been greatly alarmed over the development of the field, fearing a deluge of light oil on an already overburdened market. It now seems that the fears were well founded and if Kettleman Hills were developed at this time, the heavier oil fields would be forced to operate at an absolute loss to meet competition from what might be termed a great gasoline field.

The structure is fully 25 miles long and may prove productive the entire length. It has been segregated into three domes and several thousand wells could be drilled in the field. Not all of these wells would be large producers, but it is believed that it would be possible to develop a production of at least 100,000 barrels on the north dome alone within a year. The middle dome has demonstrated that it is a distinct threat, while the Ohio Oil Company's test on the south dome, fully 20 miles southeast of the discovery well, is showing for a producer at about the same depth as north dome producers.

Area's Possibilities Very Great

The possibilities of the field are absolutely staggering and the agreement not to produce wells as they are completed seems a very wise decision. About one-half of the land is patented, while the remainder is represented by government permits. The field may cover 100 square miles, or it may be considerably smaller or larger. The north dome leases and permits are fairly closely held, but those on the middle and south domes are widely scattered.

It requires more than six months to complete wells in the field and the cost runs as high as $300,000. The average cost is about $250,000. Production will be found between 6000 and 7500 feet, with 7000 feet the average depth.

About 30 wells are drilling in the field, but fear of a large production has passed, following a decision to shut down wells after a bona fide discovery is made. This does not mean that drilling will be stopped in its present status, as there is no clause which prohibits the drilling to completion depth.

The Ohio Oil Company is making extensive preparations to test Smith 1, now standing cemented at 7002 feet. This important south dome well is regarded as a representative test of the area and a large producer will fill in a 20-mile gap.

General Petroleum Corporation is drilling at 7320 feet in Oschner 2, Section 20-22-18, with the formation running to oil sand and shale. This well was tested at 6850 feet and produced 650 barrels of oil and 30 million cubic feet of gas at this depth. It is about six miles southeast of the discovery well and proves a large area.

Still Unable to Shut In Discovery Well

Milham Exploration Company's Elliott 2, the discovery well, is producing about 2600 barrels of 60-6 gravity oil and 65 million cubic feet of gas. The pressure has been reduced considerably by the completion of two offsets and it may be possible to shut in the well within a few months.

Standard Oil Company is by far the most active operator in the field, now drilling 15 wells on the north dome. The company has nine wells drilling below 6000 feet and is preparing to complete at least two of these. Owning practically every other section on all three domes, Standard Oil Company stands in a very dominating position. It has, however, met all curtailment measures cheerfully.

Other companies now drilling at least one well in the field are Amerada Petroleum Corporation, Associated Oil Company, Bolsa Chica Oil Company, Chanslor-Canfield-Midway Oil Company, George F. Getty, Pacific Western Oil Company, Petroleum Securities Company and Superior Oil Company.

O'Connell Zone Decline Causes Santa Fe Springs Drop

LOS ANGELES.—A large decline in O'Connell zone producers, scarcity of Clarke zone completions and a generally smaller average initial yield per well caused a decline of more than 15,000 barrels at Santa Fe Springs during the week. Reversing its position from the previous week, the field looked much tamer than during the earlier period and demonstrated that it will take a lot of new oil from the Clarke zone to offset the decline from the O'Connell sand. This does not mean, however, that production will drop rapidly but gives a true picture of the field.

Total initial production of the nine wells completed during the week was about 18,000 barrels, as against a field decline of about 35,000 barrels. This net loss of 17,000 barrels was the greatest of any for several weeks and brought the field total down to about 275,000 barrels. Average daily runs fluctuated throughout the week, but the average was not far from this figure.

The weekly decline was almost altogether from the O'Connell zone, the Clarke zone holding steady. Actual decline of the latter during the week was about 4000 barrels from a total of 70,000 barrels as of a week ago. This is

regarded as a small drop for the three dozen wells now producing in the sand.

Clarke Wells Below Average

The seven Clarke zone completions average only 2200 barrels, a smaller average than anticipated, but many of these new producers were edge wells and were not expected to make a spectacular showing. These new producers brought the zone total to about 80,000 barrels.

The gas-oil ratio of the Clarke zone producers is very satisfactory, running about 1.1900. Some of the best wells show a gas production as low as 900 feet to each barrel of oil. This low gas production prevents a larger gas waste in an area where a fight is being made to prevent any waste at all.

Nearly 150 wells are drilling for the Clarke zone, and of these a majority are off the crest of the structure. Present drilling wells will be completed over a period of at least nine months, with a fairly equal distribution during the last four months.

The Texas Company's Patterson A-10 is now the deepest well in the field, having passed 8500 feet. A shale body was found below the regular Clarke zone, under which a rich oil sand was found. This seemed particularly significant for a time, but the hole has proved to be very crooked and may have wandered down structure. Stratigraphically it may not be much deeper than several other wells nearby.

Associated Oil Company has effected a water shut-off in both Fulton 3 and 4. The former was drilled to 8300 feet, with a string of 5-inch casing at 8025 feet, and the latter to 8330 feet, with the 5-inch shut-off at 7850 feet. Both wells had bottom water and it may be necessary to plug back to produce them. About 400 feet of oil sand was found in both wells.

Standard Oil Company of California, continued its triumphant march in the Clarke zone, having completed five wells during the week. Unlucky in the Buckbee and O'Connell zones, this company has developed a large production in the lower Clarke zone in a very short time, and chiefly on leases which were not of much value in the shallower sands.

The Nordstrum zone is now producing 14,000 barrels, the Buckbee 22,000 barrels, the O'Connell 132,000 barrels, the Clarke 81,000 barrels and the shallow sands about 26,000 barrels. In deep zone production, General Petroleum Corporation comes first with 47,000 barrels, followed by Union Oil Company with 39,000 barrels; Standard Oil Company, 32,000 barrels; Texas Company, 25,000 barrels; Shell Oil Company, 8000 barrels; Associated Oil Company, 9200 barrels; Richfield Oil Company, 4400 barrels; and all other companies, 83,000 barrels.

Standard Oil Company's Walker 19, a Clarke zone producer recently completed at 7955 feet, has increased its production from 2200 barrels to 4800 barrels.

Kettleman Hills Agreement Seen As Big Step in Conservation

LOS ANGELES.—The recent signing by the Milham Exploration company of the agreement to limit production on the north dome of the Kettleman Hills field is regarded as one of the most important steps forward along the lines of conservation yet made in California and apparently removes this greatest threat from the picture for the better part of two years. The agreement does not halt drilling but makes it necessary to shut in wells after a legitimate discovery is made.

The three offset wells to the Milham Exploration Company's Elliott 1, Continental Oil Company's Elliott 12-8, Standard Oil Company's 1P-8 and 11P-81, are to be completed and placed on production in the zone from which the discovery well is producing. The pressures of these wells, under the provisions of the agreement, will be recorded daily for the purpose of determining if the pressure of Milham Exploration Company's Elliott 1 is affected. Continental Oil Company's Elliott 12-8 and Standard Oil Company's 11P-81 have already been completed and are flowing under the agreement.

Compensation for Shut-in Production

If the pressure in Milham Exploration Company's Elliott 1 is reduced so that it can be killed without hazard to life and the well itself, an effort will be made to shut it in. If this is accomplished, the three offset wells will also be shut in. If the pressure is not reduced in a reasonable time and the offset wells continue to produce, the owners of the four wells must contribute 15 per cent of the sale value of the oil and gas produced, this amount to be distributed monthly by one of the four companies to the owners of all wells on the North Dome area which have been completed and shut in on a basis of an equal part to each of the wells, regardless of their distance from the three offset wells.

(Continued on page 226)

Boom Possibilities Loom For Inglewood

LOS ANGELES.—The usual excitement which follows favorable townlot development is in evidence at Inglewood, where the Potrero field has been extended into a thickly populated district. More than the usual caution is being exercised, however, by the major operators in making locations in the sector.

George F. Getty, a leading independent producer, sprang a genuine surprise when he succeeded in obtaining a production of 1300 barrels of 44 gravity, clean oil from Parks 1, located in the townlot area and about one mile from the Potrero discovery well. After flowing for three days, the well sanded up and stopped producing. It was cleaned out and again placed on production but the flows were irregular and much smaller than during the original test. The well was completed at 3846 feet and was tested from 46 feet of sand. A string of 13-3/8-inch casing was cemented at 3800 feet. The pressures on both the tubing and casing were high for such a thin body of sand. The action of the well is not regarded as significant enough to warrant an orgy of drilling.

Dubious of Value

Tentative locations have been made for a large number of wells and most of these will be started, but geologists familiar with the area do not believe that a large and steady production will be obtained in the immediate sector. The action of other wells nearby was not satisfactory, due to failure to shut off the water and the fractured condition of the sand. Leases are held in both large and small parcels and the stage is set for considerable drilling.

There is a slight similarity between this district and the Lawndale field, in that both areas have an uncertain sand condition.

Richfield Oil Company has 20 tentative locations on a 35-acre tract offsetting the Getty well and will immediately drill one well about 150 feet from the latest producer.

Second Well Due Soon

Yorke and Lockhart have acquired the drilling well of Harlin and Blinn and will complete it at once. This test is located only a short distance from the Getty completion and flowed at the rate of 600 barrels on a water shutoff test. The well is being drilled further into the sand for a final test.

Associated Oil Company has made two new locations offsetting the townlot activity and may drill additional wells if necessary to protect its acreage.

Several other companies are rushing in material and a lively drilling campaign is sure to result.

PERSONAL MENTION-MEN YOU KNOW

E. H. Adams recently was named sales manager of the Trumble Gas Trap Company, Los Angeles. For a time he was connected with the oil and gas division of the California department of natural resources as gas engineer; he served Chestnut & Smith Corporation in similar capacity, and for two years was manager of the gas department of the Union Oil Company.

H. H. Reinman, formerly in the motor transportation department of Pure Oil Company in the Seminole field, has gone to Maracaibo, Venezuela, to assume charge of the transportation division of the Orinoco Oil Company.

K. C. Baker, president of the United North & South Development Company, which maintains headquarters at San Antonio, Texas, spent the past week in New York.

Frank V. Faulkner, vice-president and manager of production for the Magnolia Petroleum Company, has been confined to a hospital in Dallas for the past two weeks preparatory to undergoing an operation.

Edgar Wilson, vice-president and sales manager, Wieman - Kammerer-Wright, Inc., manufacturers of oil field equipment, left Los Angeles September 25 for Tulsa to get his company's exhibit ready for the big Exposition.

Charles D. Wagner, vice-president in charge of sales, Emsco Derrick & Equipment Company, was preparing to leave Los Angeles early in October on a business trip to New York, making it impossible for him to visit the Exposition at Tulsa. He has deputized Art Trout, vice-president and general manager of the company, to greet his old friends during the big week. Mr. Trout plans to fly to Tulsa to save time.

E. M. Smith, president of the Emsco Derrick & Equipment Company, in addition to his various other and sundry official titles, mostly in the oil game, is now in Spain. He expects to arrive back home some time in November.

Quentin D. Singewald has resigned as assistant professor in geology at the Colorado School of Mines to accept a position as assistant professor of geology, in charge of economic geology, at the University of Rochester, Rochester, New York.

Ralph J. Reed, who recently resigned as chief engineer of the Union Oil Company, and Miss Alberta Mann were quietly married in Los Angeles, September 23. Miss Mann acted as private secretary to E. W. Clark while he served as president of the American Petroleum Institute.

ROY E. COLLOM

formerly vice president of the Marland Oil Company of California, has been advanced to manager of California operations for the recently consolidated Continental Oil Company and Marland Oil Company. He had been an officer of the California subsidiary of the Marland Oil Company for six years, during which it grew to be one of the state's leading independents.

Collom was at one time Oil and Gas Supervisor for California and has had a wide experience in development and production methods.

Continental Oil Company's production in California is about 25,000 barrels, distributed principally in the Seal Beach, Long Beach and Richfield fields. The company holds some of the best leases in the Kettleman Hills field. Field development includes six drilling wells at Seal Beach, two at Long Beach, five at Richfield, one at Carpenteria, one at Sulphur Mountain and two at Kettleman Hills.

Some of the other members of the new Continental Oil Company are Olen Lane, superintendent of land and scouting; H. G. Thomson, in charge of auditing and personnel departments; A. H. Bell, production engineer, and R. M. Barnes, in charge of geology and research.

J. A. Bermingham, vice president and manager of production department, The Texas Company of California, departed from Los Angeles September 24 for New York to attend the annual meeting of division managers of the company.

Guy R. Nicholson, scout in the Texas Panhandle for Empire Oil & Refining Company, has been transferred to Bartlesville, Oklahoma, as chief scout. Nicholson served as president of the National Oil Scout Association for one term.

Scott Turner, director of the United States Bureau of Mines, will sail from San Francisco on October 10, to attend the World Engineering Congress at Tokio. He was appointed by President Hoover as one of the five federal engineers who are to represent the United States government at this congress. Mr. Turner is the official delegate of the Canadian Institute of Mining and Metallurgy at the congress, carries credentials from the University of Michigan and also the Michigan College of Mining and Technology as official representative of those two institutions at the meeting, and is listed as a member of the official party representing the American Institute of Mining and Metallurgical Engineers. He plans to return to the United States the latter part of November.

E. L. Doheny departed from Los Angeles, September 25, for Washington, where he will be a witness in the trial of former Secretary of the Interior Albert B. Fall.

James Talbot, chairman of the board, Richfield Oil Company, long has been interested in aviation affairs, but he has added another interest—yachting. The Carissima, 250 feet in length, four decks, powered by twin screw Diesel engines with a speed of 15 knots an hour, was delivered to him at Los Angeles harbor late in September from the Atlantic Coast. The yacht was built in Germany.

High-quality finishes for the petroleum industry

PETRO PAINTS
ALUMINUM FINISHES
and PRIMERS

Petro Paint developed especially for the oil and gas industries. Highly resistant to sulphur fumes and extremes of weather.

Developed especially for the petroleum industry, Petro Paint overcomes common difficulties in plant maintenance. It is remarkably resistant to destructive agents. It preserves and beautifies plant structures for long periods of time, with a minimum of repainting. And it is equally adapted to use on wood and in systems applicable to metal, plaster, concrete or any other type of surface.

Petro Paint sets a completely new standard for effective colors, efficiency and economy.

7 Reasons Why Petro Paint Will Meet Your Requirements

Consider these characteristics of Petro Paint as applied to your own specific painting problems:

1. Petro Paint is highly resistant to discoloration by sulphur fumes and aqueous vapors.

2. It is adapted for systems designed for all types of surfaces.

3. On tanks it curtails evaporation. It has the remarkable quality of retaining its original brilliance and cleanliness for a long period of time without fading.

4. It has greater durability under all conditions.

5. It leaves a good surface for repainting.

6. It can be applied under adverse temperature conditions. It does not crawl on cold surfaces.

7. It hides better than other mixed paints—is very economical.

du Pont Primers for Every Requirement of the Petroleum Industry

However varied the problem, there is a du Pont primer ready—extremes of contraction and expansion, rust, corrosion, gas, acids, and alkalis, or electrolytic action. Du Pont chemists, with the assistance of maintenance engineers, superintendents and master painters of the petroleum industry, worked out four primers to meet all possible conditions—No. 45 Kromate Metal Primer for surfaces subject to continuous or intermittent contact with water; No. 44 Aluminum Paint Primer for structural steel and tankage; No. 7 Primer, a general purpose primer; and No. 41 Black Metal Primer for priming tank cars which are to be finished in high-gloss black.

All of these primers have the common characteristic of inhibiting rust, resisting all forms of corrosion, and meeting extremes of expansion and contraction. They hug the surface and form a tough, elastic bond between the finishing coats and the surface. They set up free from dust in four to six hours, and dry hard in 24 to 36 hours. Therefore, they are unaffected by dew and moisture condensation. Maximum spreading capacity and may be either brushed or sprayed.

Aluminum Paint for the Petroleum Industry

Du Pont engineers studied the common faults of aluminum paints in the petroleum industry and then evolved a line of aluminum finishes far superior to anything on the market. By perfecting a superior vehicle and powder, these aluminum paints (1) keep their brilliance many times longer; (2) are easy to apply (even on vertical surfaces do not run or sag); (3) leaf properly; (4) are highly resistant to gas and moisture; and (5) set up in 4 to 6 hours and dry hard in 18 to 24 hours.

Comes either ready-mixed or ready to mix. The ready to mix is very easy to handle because vehicle and powder have a natural affinity for each other. Both varieties of du Pont aluminum paints are extraordinarily durable and leave a good surface for repainting on final disintegration.

Send for technical bulletins which describe these and other du Pont products specifically designed to cover all the painting requirements of all divisions of the petroleum industry.

DU PONT
REG. U.S. PAT. OFF.

E. I. DU PONT DE NEMOURS & CO., *Incorporated*

Petroleum Sales Department

PUBLIC LEDGER BUILDING, PHILADELPHIA, PA.

Chicago, Ill. **San Francisco, Cal.**

Kettleman Hills Agreement Seen As Big Step in Conservation
(Continued from page 223)

All other wells drilled on the North Dome will be deemed completed when the water has been shut off above the Temblor sand and the discovery has been made to the satisfaction of the federal or state oil and gas supervisor. The 15 per cent. contribution from the four wells producing will be considered full compensation to the owners of completed wells for keeping their production shut in during the time of the agreement.

If there is a market need for oil before July 1, 1931, the expiration date of the agreement, or any drilling on adjacent lands not affected by the agreement threaten drainage, a majority of those signing the agreement may petition the secretary of the interior to terminate the period of suspended development.

North and South Domes Halted Too

An agreement was also signed to halt production on the Middle Dome some time ago. A similar agreement has also been signed affecting the South Dome, and Kettleman Hills certainly will not be a disturbing factor for another two years.

One important factor in the agreements is that drilling to the oil sand is not stopped. There are now about 30 wells drilling in the field and others will be started.

Milham Exploration Company, discoverers of the field, held up the North Dome agreement for several weeks, due to inability to make satisfactory changes in contracts the company held for supplying San Francisco and other Bay cities with natural gas. These contracts have developed into extremely valuable concessions and the company felt that it must protect its interests.

It is thought that pressures in the Milham Exploration Company's discovery well will be reduced to a point where it may be at least partially shut in. The original agreement called for a complete shutdown of the four wells allowed to flow for a time, but with an urgent need of a large quantity of natural gas for San Francisco, this undoubtedly will not be done. It is believed that the final signature would not have been affixed if a complete shutdown had been asked.

Final signature to the agreement is a victory for Dr. George Otis Smith, Judge E. D. Reiter, Miley Oil Company; Ellsworth McGowan, Kettleman Oil Corporation; W. H. Berg, Standard Oil Company; W. L. McLaine, General Petroleum Corporation; R. N. Ferguson, J. H. Raney, P. N. Longan, Milham Exploration Company. All but Dr. Smith were members of a special committee appointed by F. C. van Deinse, who also deserves much credit for the pact.

Maricopa Flats Well Now Yields 4800 Barrels

Taft, Calif.—The re-completion of Rio Grande Oil Company's Havenstrite 1 in the Maricopa Flats district as a 4800-barrel well was easily the outsanding event in Kern County during the past week. The well was originally tested earlier in the month with a production of 2100 barrels but sanded up and stopped flowing. After a cleaning out the well responded with a flow of more than 200 barrels per hour. The oil is 22 gravity and shows a cut of two per cent. The well is located on Section 17-32-23 and was completed at 3350 feet.

Shut-off Fails In World's Deepest Well

Long Beach, Calif.—Shell Oil Company is re-cementing the 5 3-4 inch casing at 9144 feet in Nesa 11, following another unsuccessful attempt to effect a water shutoff. This makes the third attempt at cementing the longest string of casing ever run. The hole was drilled to 9280 feet and is the deepest ever drilled.

Information Withheld On Wildcat's Progress

Santa Barbara, Calif.—General Petroleum Corporation is withholding all information concerning its Orella test, Section 5-4-30, but the well is supposed to have swabbed about 500 barrels of fairly low gravity oil from 1350 feet. If this well proves a commercial producer a new field will be opened up about eight miles west of Elwood.

Miley Reorganizes

Los Angeles.—Miley Petroleum Corporation has been formed to take over all of the holdings of the Miley Oil Company, details of the transfer to be announced at a later date. General Petroleum Corporation and Amerada Corporation are interested in the transfer through an operating arrangement.

Elwood to Become Major California Factor

Santa Barbara, Calif.—Drilling under severe handicaps and entirely without cooperation from one another, operators on tideland permits in the Elwood field are rushing to completion wells located in the Pacific Ocean a good distance from the beach. Recent completion of the Pacific Western Oil Company's 4500-barrel producer on a tideland permit has stimulated interest in drilling and promises to be the indirect cause of developing a large production in this light oil field.

Piers are being built off the beach and a dozen wells will be under way within a few weeks. Material and equipment is shipped in by barge, as lessees operating just on-shore will not permit drillers of ocean permits permission to transport supplies across their leases. To do so, they state, would be to aid them in offsetting the best producing leases.

This field appeared very closely held for a time, but the inauguration of tideland drilling completely changed the situation. Elwood probably will become a major factor in California production within a few months.

Report Added Members At N. P. A. Meeting

Atlantic City. — Six new company members have been added to the membership roster of the National Petroleum Association, it was brought out in a report presented before the body in convention here September 18. This brings the company membership of the association up to 59.

Those companies which have become affiliated with the organization during the year are Ohio Oil Company, Penncrude Refining Company, Solar Refining Company, Standard Oil Company of Kentucky, Standard Oil Company of New York and Standard Oil Company of New Jersey.

The Program of the convention was beneficial to those who attend and was diversified. Among those who addressed the delegates or who presented technical papers were: E. M. Lyons, president of the association; Herbert A. Ross, combustion engineer; R. A. Wotawitch; James H. Herbert, Standard Oil Company of Ohio, J. J. Forbes, United States Bureau of Mines; Doctors D. P. Weld and J. B. Rather of the Standard Oil Company of New York; Willie Crane, traffic attorney for the association; Joseph E. Pogue, consulting engineer; Henry M. Crane, General Motors Corporation; Doctor George Otis Smith; E. S. Hall, Standard Oil Company of New Jersey; W. T. Holliday, Standard Oil Company of Ohio; Victor H. Scales, American Petroleum Institute.

Dixie Oil Company Moves To Tulsa

Tulsa. — The Dixie Oil Company, subsidiary of the Standard Oil Company of Indiana, is awaiting completion of the Philcade Building in Tulsa, so it can remove the rest of its executive, financial and other offices from Shreveport.

A. W. Peake, president of the company, has already moved to Tulsa, as has F. O. Prior, a vice president. They are directing the affairs of the cencern from the site of the Dixie's former branch office in Tulsa. The company is to occupy one entire floor of the Philcade and part of another.

Repressuring Questionnaire Basis For A. P. I. Chicago Session

THE following questionnaire has been prepared by the National Committee on Production Practice of the A. P. I. Division of Development and Production Engineering, E. O. Bennett, chairman, for the purpose of ascertaining as much information as possible on "Air and Gas Injection for Maintaining Pressure and Repressuring in Oil Producing Properties," which is one of the first subjects selected for national study by the Institute.

It is proposed to conduct a symposium on this subject at the annual meeting of the Institute in Chicago next December, after which a bulletin will be issued in which it is hoped to include the latest information available.

When Should Application of Pressure Be Started?

1. Should maintenance of pressure be started as soon as possible in life of field? 2. What results will be accomplished if maintenance is started during early life of field? 3. What will be the effects of delaying repressuring and starting at a later date? This with regard to water encroachment, oil recovery and cost of conducting operations?

Maintenance of Pressure in Early Life

4. What pressures are required in excess of normal rock pressures? 5. What objections are there to high pressure operations from the standpoint of operations and costs? 6. What are points in favor of high pressure maintenance operations? 7. What has been the observed effect of increased production and retardation of water encroachment where repressuring has been started in the early life of the field? What effect where this has been delayed?

Location of Input Wells

8. What method has been used to determine best location of input well for maintenance of pressure in new fields with regard to (a) Structural conditions; (b) Oil gas and water conditions; (c) Property lines? 9. What methods of operation have been worked out to include adjacent properties in a repressuring deal where ownership is different? 10. Where properties have not been put under unit control, what methods of repressuring on adjacent leases have been satisfactorily carried out, whereby no injury or gain or loss on the part of one operator to his neighbor occurs? 11. If gas is not available do you consider it advisable to use air for this purpose? 12. What are resultant damages occurring with the use of air that are not apparent with gas? 13. What method do you use to check distribution or subsurface migration of pressure over your properties when repressuring? 14. With a check on migration of pressure, have you been able to control the same? If so, what methods have you used?

Repressuring in Later Life

15. Do you base the location of input wells on structure, production, sand conditions, water conditions, property lines, condition and size of wells, spacing, in old properties? 16. In an old property, do you consider it advisable to drill additional locations for repressuring operations? If so, do you use the new locations for pressure wells or for production wells? State the reasons for your answer. 17. How many input wells, or what ratio of key wells, do you use for a given number of producing wells? Upon what do you base this number? 18. Should an input well be a small well, or a good producer? Why? 19. What do you consider a preferable method of cleaning out an input well? 20. Do you consider it advisable to shoot an input well? 21. Would you use a well making water for an input well? State reasons for your answer. 22. What effect has repressuring on water encroachment? In answering this question, give consideration to location of key well with respect to water plane. 23. What methods are used to dispose of fluid in an input well when starting? 24. How do you prepare input wells for taking gas? Do you cement, use a packer or inject gas through tubing or casing, or what other methods do you use? 25. What precautions are taken to shut off a waste of input gas to barren upper formations? 26. Have you been able to change former input wells into satisfactory producing wells? In what proportion?

Operation

27. What methods and equipment do you use to measure volume injected and to control the same? 28. Do you prefer operation under uniform pressure conditions or uniform volume input per well? Give reasons for your answer. 29. Are you repressuring in conjunction with gasoline plant operations? 30. What is the effect of repressuring on gasolnie production? 31. What, in your opinion, is the value of injecting liquid fractions from gasoline plants into input wells for oil recovery? 32. Do you consider it advisable to return wet gas without extracting any gasoline? 33. What factors in a well will govern results obtained from the use of liquid fractions? 34. Laboratory experiments have shown that liquid fractions will wash sand practically clean of all oil adhering to them. In your opinion, do you think that condensate, not now being sold for gasoline, will ultimately have a great value for oil recovery? 35. What system of control do you use to prevent by-passing of gas from input wells to producing wells? For wells operating by natural flow on the beam and operating off of central powers? 36. If you use fluid levels to hold back pressure on producing wells, by what method do you control and measure the fluid level? 37. In a field under repressuring operations, do you consider it advisable to operate a well so it will pump off or make its production regardless of amount steadily over a period of 24 hours? What effect does each method have upon repressuring operations? 38. Have you successfully used the gas lift for producing in a field where repressuring is practiced? If so, what disposition has been made of the gas used for this purpose? 39. If a field is under vacuum and it is desired to repressure, should the vacuum be discontinued before or during repressuring operations and should it be discontinued at once or slowly? Give reasons for your discussion. 40. Where fields have been under vacuum then repressured what has been the effect on production? 41. Which has been the most economical stimulant for oil recovery, vacuum or repressuring? Why? 42. In your experience what are the beneficial and detrimental effects caused by shutting in? 43. What is the comparative value, with respect to increasing production, of: (a) air; (b) dry gas; (c) wet gas; (d) propane and butane; (e) exhaust gas; (f) hot gas and hot air; (g) tail gas from refineries? 44. What has been the actual effect of air repressuring on gasoline extraction from the gas produced? 45. What determines whether air and gas should be used? 46. What is the effect of air upon corrosion and emulsions? 47. What methods of back pressure control have you used and what results have been obtained with them in controlling the flow of oil from wells in a repressuring operation? 48. What do you estimate an increased cost of operation for repressuring over and above normal operations in—(a) shallow pools? (b) deep pools? 49. What effect have you observed in the lifting cost per barrel of a property considering increased production after repressuring operations have been applied?

50. From results obtained in repressuring, what ultimate increase in recovery do you think will be possible from various types of operating properties and what total percentage of the oil in the formation do you think can be recovered under best conditions of repressuring? 51. How do

you determine what size plant to install in a given property for repressuring operations? What basis do you estimate the amount of gas required for nominal increased barrels of oil produced? 52. Do you consider it advisable to make preliminary tests in repressuring operations with portable equipment for a period of time to determine the operating characteristics of the structure before proceeding with a permanent plant investment? If so, describe the procedure you have used. 53. What is your opinion of a central compressor plant selling gas to a number of operators for repressuring on a compression cost basis? This with regard to flexibility of operations and effect upon labor charges for conducting operations?

Cost Data

54. Upon what basis do you figure the initial cost of a plant to conduct repressuring operations? 55. Do you put this on a well basis or barrel basis? 56. What will be the operating cost on a barrel basis, and what is the cost of compressing 1000 cubic feet of gas to the several pressures required for repressuring operations? 57. Do you figure plant depreciation over the life of the project or the life of the machinery?

Plant Design

58. What types of compressors are best suited to repressuring? (a) direct connected; (b) belt driven; (c) prime movers (gas engines, oil engines, steam engines, electric motors) (2- or 4-cycle) (multi cylinder); (d) intercooling and after cooling? 59. Do you prefer a header at plant with separate lines to all input wells or a distribution loop with branches, and why? 60. What measures do you take to prevent freezing difficulties in winter time? 61. Have compressor plants operated by lease pumpers been more economical than those operated by special operators?

Formations and Types of Wells

62. Do you know of any cases where repressuring or pressure maintenance has been harmful? If so, describe. 63. Do you feel that repressuring and pressure maintenance should be confined to formations of any particular depths? If so, to what limits? 64. What types of formations have you successfully repressured? 65. Which do you prefer? (list in order of preference): standstones, limestones, Olitic limestones and dolemites, conglomerates, sands (unconsolidated)? 66. What effect do different gases or air have upon the porosity and permeability of the producing formations? 67. Have thick sand bodies with upper gas sands exposed been successfully repressured? If so, to what do you attribute the increase in production? (a) drive; (b) pressure effect upon viscosity; (c) frictional effects between gas and oil; (d) recovery of additional natural gasoline? 68. What effect has repressuring had upon the gravity of the oil? with (a) dry gas; (b) air; (c) wet gas? 69. Does repressuring maintain a more even residue gas supply eliminating seasonal shortages of fuel? 70. Has underground gas storage been successful? What percentage is recoverable?

Fifth Producer Extends Hobbs Area Half Mile South

ARTESIA, New Mexico—Extending the producing limits of the Hobbs field, located in Lea County near the New Mexico-Texas line, one-half mile to the south with a natural flow of 55 barrels of 36° gravity oil per hour at 4105-4155 feet, the Mid-West Refining Company's L. Leech 1 marks the fifth successful completion for the field. This high gravity oil area is proven for nearly five miles in length for flowing production, and more than a half dozen new locations have been staked for immediate drilling. Favorable prospects of a major development program's being launched in the wake of a direct pipe line outlet has caused carriers in other sections of the country to hold back on entering the field, but one or more tank farms are certain to be erected by well owners.

Harry Walker, president of the Walker Oil Corporation of Wichita, Kansas, announced early this week that five or more large tanks would be erected by the company in the Hobbs field to take care of current and future production until a market is available. One 80,000 and a 55,000-barrel tank were purchased for immediate erection on the company's O. B. Terry 80-acre lease, which has a well flowing 425 barrels of 36.8° gravity oil from upper lime at 4155 feet. This well has been flowing into small lease tankage since September 8, and D. A. Bowers, who is general production superintendent with headquarters at the Dickinson Hotel, Roswell, New Mexico, was preparing to deepen the producer September 30. Walker also announced that a contract has been made with the Eastland Oil Company, drilling contractor on the first producer, for starting three more tests on the lease. Shell Petroleum Corporation is rigging up for a north offset to the Walker Oil Corporation's producer, and Mid-West Refining Company is to drill a west offset.

No Pipe Line Connections

The completion of the Leech 1, which is located in the NEc SE NW Section 15-19s-38e, gives Mid-West Refining Company three producers, including the discovery well and a northeast offset to the latter. The Leech well was spudded July 6, 1929, and completed in less than 90 days. The company has a 55,000-barrel steel tank and considerable lease tankage that was erected for the discovery well and is very likely to join the ranks of tank builders in the event The Texas Pipe Line Company or the Humble Pipe Line Company further delay extensions of lines to the field. The latter has made survey for a line from the Jal field and will later be forced to handle the Hobbs field production of the Humble Oil & Refining Company. The Texas Pipe Line Company is within 30 miles of the field with a six-inch line.

Prairie Oil & Gas Company is to drill an east offset to the Leech producer, thus marking its initial entry into the county, although production has been scored to the west in Eddy County. The Landreth Production Corporation, Fort Worth, and the Maljamar Oil & Gas Corporation, Artesia, are to drill one or more tests jointly in the Hobbs field, and the first is to be located in the north one-half of Section 6-19s-38e. The approaching completion of the Ohio Oil Company's State 1, located in the NEc S½ SW¼ Section 9-19s-38e, is to require an offset by Mid-West Refining Company, thereby making three tests in the discovery well section of the field.

Wells Holding Up

Humble Oil & Refining Company's D. A. Bowers 1, which is the outpost producer on the northwest end of the Hobbs field, flowed 160 barrels of high gravity oil during 24-hour period ending 7 a. m. September 29 via tubing from lime at 3143-3304 feet, but is expected to develop into a better well when tubing is properly adjusted. This company's Lindley 1-B, which was reported last week as being a new producer for the Jal field, flowed 2240 barrels of clean oil on three-day gauge from lime at 3365-3439 feet, and late last week was making 560 barrels daily via three-inch tubing.

In the Lynch pool, located in the west central part of Lea County, The Texas Company is rigging up on three tests on State fee to take care of offsets. Snowden & McSweeney Company is entering this pool with a rig that is being shipped from Utah, while the Continental Oil Company is drilling at 825 feet on a water well. Cranfill-Reynolds Company's State 2-B is spudding, with several more locations necessary to take care of offsets. The latter's State 1-B continues to pump about 1800 barrels of 31 gravity oil daily from lime at 3749-55 feet, and is responsible for the crowding in of nearby tests. The Texas Pipe Line Company is running this oil for purchase.

Cavings have prevented a satisfactory test being made by the Texas Pacific Coal & Oil Company on its State 2, Section 21-23s-36e, after coring oil saturated lime at 3649-82 feet, but a string of 6⅝-inch casing has been cemented at 3635 feet to clear up the difficulty.

High Island

Houston.—Gulf Production Company's Smith A-4 at High Island, Galveston County, came in flowing 1200 barrels, 20 per cent sediment and water, when four joints of screen were set at 3353 feet. The crude tested 30.8 gravity at 87 degrees temperature.

Marrs McLean's Cade 16 in that field is drilling sand and shale at 3318 feet.

THE NATURAL GAS INDUSTRY

Louisiana Gas Fields Are Re-Gauged

Shreveport, La.—The open flow capacity of 759 gas wells in the Monroe and Richland Parish gas fields of North Louisiana is 6,704,691,000 cubic feet daily, according to figures just compiled by the minerals division of the Louisiana Conservation Commission, which has just completed the semi-annual re-gauge of the fields. Included in the Monroe field are 670 wells situated in Morehouse, Ouachita, and Union Parish, and 89 gassers in Richland. Monroe's open flow capacity is 4,006,000,000 feet while Richland's is 2,698,691,000 feet. The semi-annual re-gauge of March, 1929, gave Monroe an open flow capacity of 3,652,000 feet and Richland 2,281,000,000 feet.

More West Texas Towns Get Gas Service

Dallas, Texas.—A market outlet for a portion of the natural gas production now available from completed shallow gassers in the Taylor-Link pool, Pecos County, Texas, is to be provided by the Southern Union Gas Company through the construction of a 15-mile trunk line to McCamey, where a 25 year franchise was recently obtained. Materials are being assembled for the immediate construction of the line, which will probably be six-inch welded, and the work is to be done by construction crews engaged by the company, with M. Ulmer, superintendent in charge. This gas is practically free of sulphur, and tests 1100 B. T. U.'s.

The Southern Union Gas Company is reported to be negotiating for contracts to supply natural gas to the McCamey refinery of the Humble Oil & Refining Company, and the Girven plant of the Pecos Valley Power & Light Company. The combined daily demand of these two industrial units is estimated at 6,000,000 cubic feet of gas daily, and the latter product will replace fuel oil and crude for fuel. Headquarters of the Southern Union Gas Company are located on the ninth floor American Exchange Bank Building, Dallas. The officers are: Clint W. Murchison, chairman of the board and active manager T. Frank Murchison, president; Kenneth Murchison, secretary-treasurer; and Ralph H. Inglefield, auditor.

Natural gas transformation and marketing units are now being operated in West Texas, Central Texas and Oklahoma, while work is to be started shortly on the construction of a 16-mile four-inch line from Rattlesnake Dome to Farmington, New Mexico. The company supplies gas to Hennessey, Dover and Kingfisher, Oklahoma, via a 30-mile six-inch line that was put into operation last November from Logan County, Oklahoma, natural gasoline plants. Construction work is to be started shortly on a 23-mile six-inch line, with four-inch laterals, to supply gas from the Raccoon Band field to the towns of Columbus, Eagle Lake and Sealy, located in South Texas. In West Texas the company is supplying natural gas from fields in Winkler and Ward Counties to the towns of Kermit, Wink, Pyote, Monahans, Barstow and Pecos. All units are delivering the gas at well pressure.

California Operators Far From Agreement on Handling of Surplus Gas.

(Continued from Page 54)

duction will be limited to the amount of gas which may be used. It now seems that repressuring is not a practical undertaking in this field, he said. If no arrangement is made at Santa Fe Springs, gas production will be held to the amount actually needed, Bennett added.

Robert Murphy, attorney for certain independent operators, said that the smaller operators had not been consulted on the matter, and added that there were ambiguities and vague expressions in the agreement which the independent operators wanted explained.

The hearing before R. D. Bush was postponed until October 7.

From reliable sources it has been learned that the smaller operators are still strenuously objecting to the provisions in the agreement whereby they are not to receive pay for the gas delivered to the association. This fact probably is not as important as it is painted by opponents of the clause, but will be one of the most difficult provisions to put over by the seven major operators, who are to contribute $230,000 each.

The greatest gas waste is at Santa Fe Springs, and naturally the greatest effort is being made to handle this troublesome field. The waste is still around 400 million cubic feet daily.

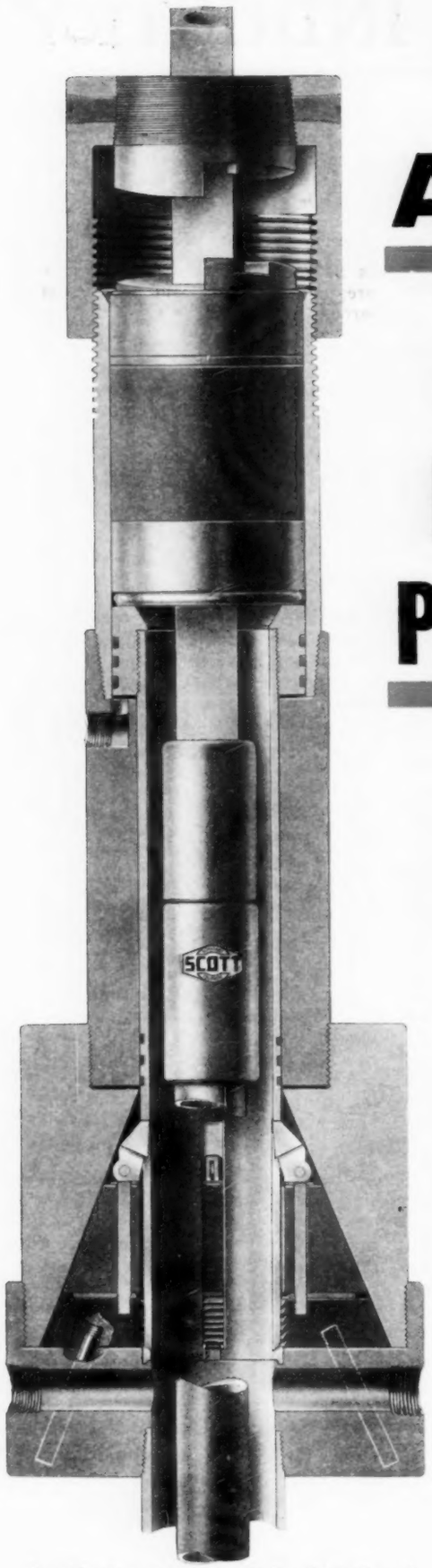
It would require only a short time to completely eliminate the waste in this field, if the operators would cooperate. From a mechanical standpoint, this could be accomplished by using smaller beans and by completely shutting in smaller wells. It is obviously unfair for a few to reduce production by beaning back their wells, while offsetting companies are producing at a maximum rate. A cutback in one well would build up a higher pressure and this would be immediately reflected in a larger production from the offsetting well which was not complying with the gas saving statute. The back pressure from wells shut in or partially shut in would be of the greatest benefit to neighboring operators not kindly disposed to curtailment. Companies in favor of enforcement are not sufficiently in favor to cut back their wells to the benefit of their neighbors.

While efforts are being made to reach an agreement on the proposed gas conservation association, several companies at Santa Fe Springs are making preparations to handle at least a large percentage of their surplus gas. The Texas Company is completing a large compressor station which will handle the bulk of the gas now being wasted. Union Oil Company has in readiness a large compressor plant which was once used for repressuring and storing gas in the Bell and Meyer zones. General Petroleum Corporation has completed a large compressor plant which will enable them to handle about 30 million cubic feet of surplus gas. Other companies are assembling such equipment as they have available and placing it in readiness for individual use if necessary. Most of the smaller operators are making no provisions for handling surplus gas.

Operators in the Ventura field met September 24 with R. D. Bush, state oil and gas inspector, for formulating a plan for handling surplus gas. W. C. McDuffie of the Pacific Western Oil Company submitted a plan which called for the shutting down of wells producing large quantities of gas, but T. E. Swigart of Shell Oil Company contended that the largest gas producers were the old wells and such a plan would not prove equitable. Joseph Jensen of Associated Oil Company advanced a theory that it is possible to produce well up to the present field total without wasting an appreciable amount of gas. The plan as outlined by McDuffie would restrict Associated Oil Company to a gas production of about 55 million cubic feet and around 20,000 barrels of oil, while Shell Oil Company would have a gas output of about 46 million cubic feet and less than 20,000 barrels of oil.

Another hearing will be given the Ventura operators October 3, when it is expected that the state oil and gas supervisor will issue an order citing the operators for wasting gas at an "unreasonable" rate. This procedure differs from the injunction method used against Santa Fe Springs operators.

Independent operators in the Santa Fe Springs, Long Beach, Seal Beach and Ventura fields recently met and named a committee to analyze the agreement formulated by the seven major operators. The committee is composed of E. D. Reiter, Miley Oil Company, chairman; George Machris, Wilshire Oil Company; William C. McDuffie, Pacific Western Oil Company; Herbery Macmillan, Macmillan Petroleum Company; J. R. Pemberton, Petroleum Securities Company; Robert McKeon, Italo Petroleum Corporation, and Thomas H. Lipps, Twin Bell Syndicate.



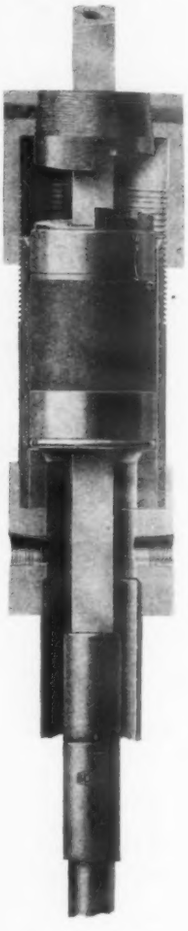
Combination Automatic Kelly Packoff and Steam-operated drill pipe seal

DEPENDABLE SCOTT EQUIPMENT

AUTOMATIC

OUTSIDE BLOWOUT PREVENTER

ON THE DRILL PIPE



Automatic Kelly Packoff in drilling position.

DEPENDABLE SCOTT EQUIPMENT

Owned and Sold By

RODLESS PUMP CO.

510 West Sixth St.

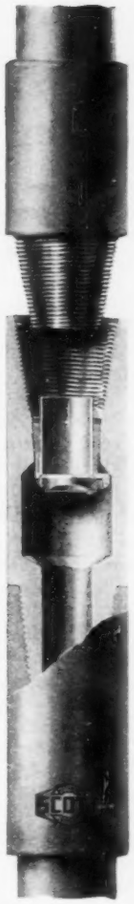
Los Angeles, Calif.

See Our Display At Tulsa Exposition

Flow Head for mudding or producing

DEPENDABLE SCOTT EQUIPMENT

AUTOMATIC INSIDE BLOWOUT PREVENTER IN THE DRILL PIPE



Tool Joint in operable position while pulling drill pipe

DEPENDABLE SCOTT EQUIPMENT

LET THE PRESSURE PACK IT OFF

Owned and Sold By

RODLESS PUMP CO.

510 West Sixth St.

Los Angeles, Calif.

See Our Display At Tulsa Exposition

Few Deep Tests Have Been Drilled in Interior Texas

(*Continued from page 74*)

The present owners took over the project to deepen last October.

Sutton County

Efforts of the Phillips Petroleum Company to make a thorough test of the lower formations on its wildcat block centering on the A. G. Holman ranch, Sutton County, have gone amiss at 6633 feet due to the loss of four strings of tools in the hole. This test landed a string of 5-3/16-inch pipe at 5785 feet.

However, this company is scheduled to make a deep test of its wildcat on the J. A. Whitten ranch, near El Dorado, Schleicher County, and is now drilling below 5350 feet, with 6⅝-inch casing landed at 5027 feet. Phantom Oil Company, Tulsa, is reported to be planning to make a deep test of its wildcat on the Ingram-Babb Brothers ranch, Val Verde County. This test was recently spudded with cable tools, and Carl G. Cromwell, who was superintendent in charge of the drilling of the record depth producer in the Big Lake field, has the drilling contract. The Milham Corporation, which is a subsidiary of the discoverer of the Kettleman Hills deep production in California is conducting a search for deep production in Terrell County on the Bassett ranch, and is drilling near the 5500-foot level, with 6⅝-inch casing cemented at 3986 feet. E. W. Brooks-D. R. Thompson et al have been engaged for months in trying to lower pipe to shut off water at 5658 feet in their wildcat test in the Eddins ranch, Reeves County.

Texas Panhandle

The deepest hole and also the oldest operation being carried in Texas Panhandle drilling reports is the wildcat test of the Big Bend Oil Company on Lederick ranch, Roberts County. This test was started in March, 1924, by Phil Engle and associates, and carried to 3930 feet. A group of local citizens of the county took the test over late in 1925, and have been plugging along at intervals, resulting in the hole reaching a depth of 5992 feet. This has been a most unusual operation, since the crew landed three-inch at 5153 feet, and made the balance of the new hole with 2½-inch tools. A number of high gravity oil showings have been encountered below the one mile horizon, and plans are to plug back from the present depth and shoot the well.

The nearest approach to a deep test in the Borger field, Hutchinson County section of the Panhandle, was provided by the Phillips Petroleum Company's J. A. Whittenburg-Elra 12, which was caried to 5333 feet. A fishing job developed at this level, and operations were halted last November. On the southeast rim of the Panhandle district, Rio Bravo Oil Company recently suspended operations on its W. E. Hughes ranch wildcat drilling block, Hall County, at a total depth of 5232 feet.

North and Central West Texas

Producing areas in North and Central West Texas districts have never been given deep tests in the present day terms of gauging well depths, although the latter district has provided commercial production in lime formation around the 4000-foot level for a number of years, and deeper in some instances. In previous years much discussion has taken place as to the possibilities of deep production being found in Wichita County beneath the Burkburnett and Electra fields, but the deepest hole in this county is the test of Howell & Sommers on the Hirschi farm, Hirschi pool, and it was abandoned late last year at 5285 feet. The second deepest hole in Wichita County is the recent completion of Gulf Production Company's S. B. Burnett 43, which bailed live oil in white sandy-lime at 3617-20 feet, before being carried to a total depth of 4291 feet. This test plugged back and shot with 200 quarts at 3598-3650 feet resulting in 900 feet of oil in the hole the first 12 hours, but proved non-commercial on swabbing test, such being the first encouragement of deep production underlying the county.

Archer County has one test an even mile in depth in the Gose pool, and a slight show of oil and gas with water was encountered at the base of the Bend series at 5036-38 feet when Continental Oil Company drilled this test. Considerable trading in royalty followed in the wake of news regarding the showing. W. W. Silk et al's Scott 1, located in the southeast edge of Archer County, was carried to 5005 feet and abandoned before the county became an important shallow oil area. Jack County added one of its deepest failures last April when Llewellyn and W. T. Knight's Oliver Loving 1, located near the Bryson field, was abandoned at 5381 feet.

Included among the so-called deep tests in the North Texas district is the wildcat failure of the Magnolia Petroleum Company on the Cassidy--Southwestern Company fee land, Wise County, and operations were suspended at 5858 feet because of a junked hole in December, 1925. This test encountered almost enough natural gas to fire a boiler from sand at 5285-5335 feet, and also at 5721-23 feet.

East Central Texas

The East Central Texas fault zone added its deepest test this past summer when C. F. Lytle and associates drilled Thompson 1, located on the west side of the Mexia field, to 6090 feet to make a test for oil production in the Trinity sand formation, but encountered hot salt water. This test was the most thorough operation conducted for deep production in the district, and the expense was largely financed by C. F. Lytle, who is a building and highway contractor as well as an active oil operator. Nearby lease owners contributed a small amount of cash, and the balance of the aid given consisted of leases and royalty interests that Lytle retained because of confidence in making a producer. Prior to the sinking of this test, E. L. Smith Oil Company and a group of Mexia operators pooled the cost of making a Trinity sand test on the Steubenrach farm, located on the west side of the Mexia field, and developed a flow of 5,000,000 cubic feet of wet gas and 15 barrel spray of 48.9 gravity oil daily at 5783 feet, but the hole was junked in trying to set casing to test the formation. Farrish-Watts & Collins contracted to drill this test to 5500 feet for $90,000 cash, and were paid on a footage basis for the remainder of the hole drilled.

The deepest test in the ill-fated Kosse district, Limestone County, was drilled by the Pandem Oil Corporation and associates on the Bassett land to a total depth of 6052 feet. Geo. McCamey, Fort Worth contractor, contracted to drill this test to 5500 feet for $85,000 cash, and a group of leases, that made the price equivalent to $100,000. Sun Oil Company made a try for production in the Trinity sand in the Richland field, Navarro County, and develped a show of oil and water in the Glen Rose at 4843-55 feet. This test was known as H. A. Swink 1-C, and was abandoned in February, 1927, after twisting off drill stem at 5415 feet. It is reported to have cost $82,225.00 to drill and abandon. Cranfill Brothers drilled the hole on contract.

Freedom Dome to Have Deep Wildcat Test

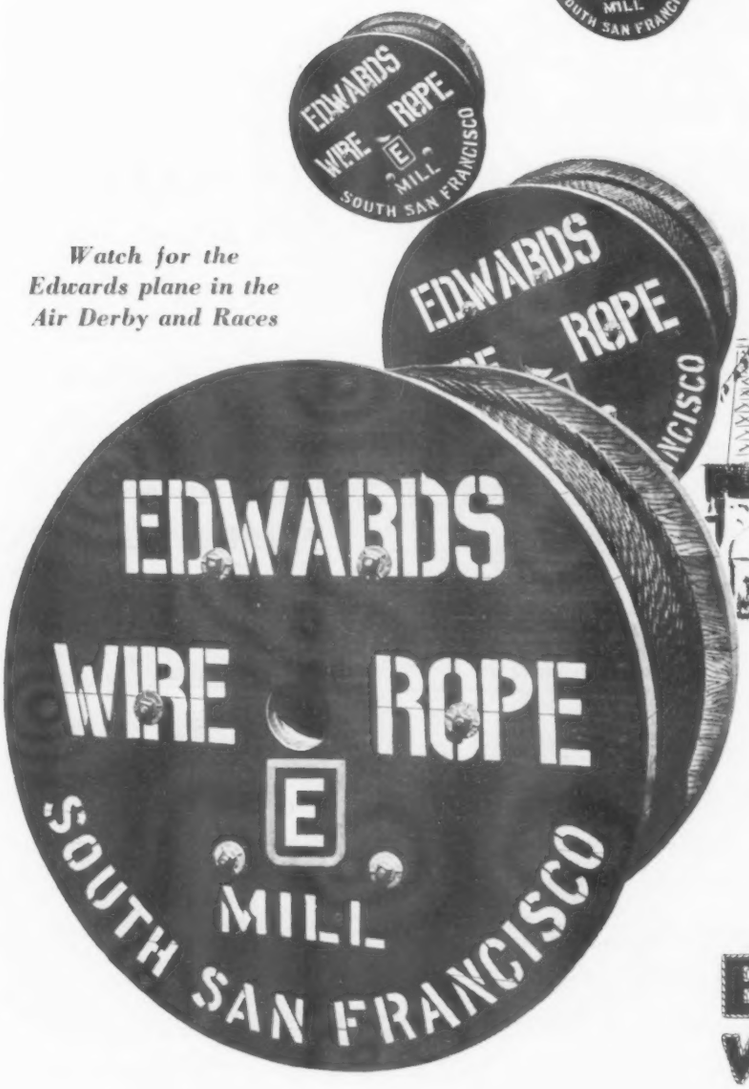
Great Falls, Montana.—The E. B. Coolidge interests are moving in on Freedom Dome structure, Garfield County, Central Montana, and operations are already started on 36-16n-38e. This is to be a deep test, starting prepared to go through the Embar, Tensleep, Amsden and Madison—deeper than any test previously drilled on this structure. Freedom Dome is 70 miles east of the Cat field, 16 miles south of the town of Jordan, the county seat, and 12 miles west of the town of Cohagen.

San Angelo, Texas.—Headquarters of the Fuhrman Petroleum Corporation are to be moved from Dallas to this city, where space has been leased on the third floor of the new Western Reserve Life building. The company has conducted a continuous wildcat drilling campaign in West Texas for several years, with several now under way.

We are BOMBARDING *the* OIL SHOW

—with the
Peace time popularity
of a great wire rope

BOOTH 24—TEXAS BUILDING



Watch for the Edwards plane in the Air Derby and Races

E. H. EDWARDS COMPANY
Standard Oil Building
San Francisco

Mid-Continent Distributors
Hinderliter Tool Company
Tulsa, Oklahoma

EDWARDS WIRE ROPE

Deep Drilling Revives Old Fields in Gulf Coast

(*Continued from page 70*)

thick beds has been a graveyard of fortunes. Affording unstable and uncontrollable walls in the drilled hole, it has constituted a practically impenetrable barrier to deep drilling. The hole is drilled without difficulty, but in coming out of the hole trouble begins. As the bit comes out, the hole heaves in, some of the shale frequently following the bit, by reason of the vacuum created. By the time the drill pipe is lowered again, there is no hole down in the heaving shale. It is not unusual to lose several hundred feet of hole in that manner.

Combating Heaving Shale

Checking through the records on deep wells in Gulf Coast fields, one finds a high percentage of them abandoned in heaving shale. Particularly is that true of Spindle Top.

Whether or not production would be obtained if these troublesome shales were successfully penetrated is, of course, conjectural. Possibly no production would be found in the base of them or below them, but possibly there would be prolific production. Nobody has ever drilled deep enough to see.

In combating heaving shales some progress has been made through treating drilling muds. Baroid is used extensively to make the mud heavier, and during the past year or so various chemicals, such as caustic soda, soaps, "Mud-It," and similar preparations, have been tried out with favorable results. These chemicals make the mud "slick" and are said to plaster the walls of the hole particularly well, at the same time affording efficient circulation of the mud and satisfactory settling out of cuttings. One company operating at Humble has had favorable results in drilling in shales by coming out of the hole under pressure, through use of a specially designed auxiliary swivel.

By exercising extreme care Gulf Coast operators sometimes go 400 or 500 feet into the heaving shale, but that is about the limit. And in the cavey shales at Humble, producing wells are completed by setting casing in the lowest available gumbo, and then setting long strings of screen—as much as 500 to 1000 feet of screen. But although that is a troublesome shale at Humble, it is not the regular heaving shale. The typical heaving shale has not yet been conquered.

Costs on Deep Drilling

Concerning the costs of drilling deep wells in the Gulf Coast region, it is of course impractical to give any definite figures. The costs vary greatly, according to conditions under which wells are drilled. At Spindle Top or Barbers Hill wells are drilled relatively cheap, with all costs relatively low. At Sweet Lake the wells are drilled in the middle of a lake, and at Lockport, in a marsh, and the costs are naturally at least somewhat higher.

The following figures on costs, however, should be of considerable interest. Over a period of five years, one major company of the Gulf Coast, drilling in numerous fields and under many conditions, found the average cost of all wells under 5000 feet deep, approximately $7.00 per foot. That figure includes casing and pumping equipment on producing wells, and is based likewise on wildcat failures where not much casing is set. For wells ranging from 5000 to 5500 feet deep, the average cost was found to be $8.00 per foot; for 5500 to 6000-foot wells, $8.25 per foot; and for wells 6000 to 6500 feet deep, the average cost was $9.25 per foot.

Summing up the data in the accompanying tables, it is found that in the whole Gulf Coast region there have been around 400 wells drilled below 5000 feet; 53 wells below 6000 feet; six below 7000 feet, and one below 8000 feet.

GULF COAST FIELDS WHERE WELLS HAVE BEEN DRILLED BELOW 5000 FEET

Field—	No. Wells Over 5000 ft. Deep	Deepest Hole* (Depth in feet)	Deepest Commercial Producer* (Depth in feet)
Barbers Hill, Texas	51	8150 Yount-Lee, C. C. A. A. 4	5708 Sun, C. C. A. A. 1
Evangeline, Louisiana	7	7680 Yount-Lee, Crowley 4	7290 Yount-Lee, Houssiere 6
Starks, Louisiana	4	7207 Gulf, Ind. Lbr. Co., 13	4800 Gulf, Lutcher-Moore 5
Lockport, Louisiana	18	7138 Shell, Miller 1	5667 Vacuum-Gulf, Farquhar 5
Hamshire, Texas (wildcat)	1	7113 Shell, Heisig 1	No production
Goose Creek, Texas	3	6967 Humble, Simms-Smith 74	
Spindle Top, Texas, about	100	6765 Yount-Lee, Gladys 6	5879 Yount-Lee, Fee 27
Needville, Texas (wildcat)	1	6889 Sou. Tex. Pet., Hartfield 1	No production
S. of Beaumont, Texas, (wildcat)	1	6722 Yount-Lee, Nona Mills	No production
Fannett, Texas	8	6488 Gulf, Bordages 3	5658 Gulf, Bordages A-7
Sweet Lake, Louisiana	7	6392 Pure, Sweet Lake 3	5924 Pure, Sweet Lake 4
Clemens Dome, Texas	3	6319 Roxana, Pabst A-2	No production
Sulphur, Louisiana	8	6260 Union Sulphur, Fee 740	5705 Union Sulphur, Fee 730
Nash Dome, Texas	7	6252 Rycade, Nash 12	4546 Rycade, Wisdom 22
Pierce Junction, Texas, about	25	6162 Rio Bravo, G. H. & S. A. 101	5640 Anderson-Plummer, Whitehead 5
Orange, Texas	18	6124 Sun, Brown 6	5303 Sun, Brown 2

Field—	No. Wells Over 5000 ft. Deep	Deepest Hole* (Depth in feet)	Deepest Commercial Producer* (Depth in feet)
Hackberry, Louisiana	5	6015 Yount-Lee, School 9	4345 Rycade-Humble, Gulf 1
Esperson Dome, Texas	2	6014 Union Explo. Co. Esperson 2	3320 Harvey Smith, Moores Bluff Corp. 1
White Castle, Louisiana	1	5995 Shell, Wilbert 3	No production
Allen Dome, Texas	9	5960 Roxana, Poole A-2	5584 Roxana, Randon 1
Big Hill, Texas (Jefferson County	1	5958 The Texas Co., Pipkin 1	This well made gas
Roanoke, Louisiana, (wildcats)	2	5920 Vacuum, Earl 1	No production
Avery Island, Louisiana.....	1	5873 La. Ld. & Ex. Co., No. 2	No production
Stratton Ridge, Texas.....	4	5850 Gulf, Perry 3	No production
Humble, Texas	14	5850 S. Tex. Pet. Co., Bert 1	5347 So. Tex. Pet., Morris 1
Mykawa, Texas	1	5811 Humble, Minnetex 1	4189—gas Humble, Irvin 2
Egan, Louisiana, (wildcat).....	1	5800 Gulf, Houssiere 1	No production
Anahuac, Texas, (wildcat)....	1	5772 Gulf, Wilborn 1	No production
Sorrento, Louisiana	1	5725 Gulf, United Lds. 15	1660 Gulf, United Lds. 4
Genoa, Texas, (wildcat).....	1	5650—drlg. Humble, Woodburn 1	No production
Refugio, Texas	5	5607—1½ mil. gas HoustonOil Co., A. W. J. Heard 4	5523 Mission Drlg. Co., O'Brien 1
Darrow, Louisiana	1	5604 Gulf, Belle Helene 1	No production
Lake Charles, Louisiana (wildcat)	1	5600—drlg. J. O. Davis, Minns 1	No production
Boling, Texas	3	5550 T. Tex. Co., Farmer 1	3986 Sun, Kasparek 3
N. Dayton, Texas	1	5461 Sun, Kovaleik 1	4315 Harrison, Quintette 3
High Island, Texas	1	5441 Gulf, McLean 17	5441 Gulf, McLean 17
Rosenberg, Texas, (wildcat)..	1	5371 Humble, Miller 1	No production
Moss Bluff, Texas	2	5330—drlg. Pure, Liberty Inv. 1	No production
Johnson's Bayou, Louisiana (Cameron Parish)	1	5287 Humble-Sun, Peterson 1	No production
Blue Ridge, Texas	4	5278 Niels Esperson, Ewing 1	Around 4500 ft.
Shepherds Mott, Texas.....	1	5260 Crossland, Hawkins 1	No production
Hull, Texas	2	5260 Gulf, Phoenix 87	5075 Houston Prod Co., Taylor 4
Moores Field, Texas	1	5230—drlg. Gulf, Moore 19	3902 Gulf, Moore 18
S. Liberty, Texas	1	5174 T. Tex. Co., Pickett 3	Around 4000
Bayou Bouillon, Louisiana....	1	5163 Rycade, Atchafalaya 3	3345 Rycade B. B. 4
Davis Hill, Texas	1	5160 T. Tex. Co., Havard 1	No production
Markham, Texas	1	5148 Rycade, Kountze 1	3621 Rycade, Hudson-Humble 2
Long Point, Texas.....	1	5143—drlg. Gulf, Trone 12	596 Gulf, Wolf 13
E. Hackberry, Louisiana.....	1	5114 Calcasieu Oil, Doiron 1	4215 Calcasieu, Caldwell 2
Brazoria County Wildcat.....	1	5075 Wichita Pet., Griffith 1	No production
Bayou Blue, Louisiana.....	1	5010 Standard, Schwing 1	1925 Standard, Wilbert 3
Loreauville, Louisiana	1	5010 Gulf, Broussard 1	1180 Gulf, State Z-4

COMPLETIONS FOR PAST WEEK IN U.S. FIELDS

SUMMARIZED REVIEW OF FIELD RESULTS

State —	Completions This week	Completions Last week	Producers This week	Producers Last week	Gas Wells This week	Gas Wells Last week	Failures This week	Failures Last week	Initial Prod. This week	Initial Prod. Last week
Arkansas	3	6	1	3	..	..	2	3	15	208
California	27	48	25	44	..	..	2	4	34,250	68,505
Illinois	16	28	15	28	..	..	1	..	511	1,120
Indiana	2	3	..	..	2	..	..	3	...	...
Kansas	26	34	14	15	..	2	12	17	2,365	3,825
Kentucky	27	27	17	21	3	..	7	6	1,830	2,434
Louisiana	19	29	9	11	4	5	6	13	4,571	6,980
Michigan	12	4	5	4	1	..	6	..	490	860
New Mexico	2	..	2	..	..	..	..	..	190	...
New York	..	16	..	16	..	..	..	..	...	54
Ohio	60	61	25	23	18	16	17	22	1,056	845
Oklahoma	92	66	56	43	7	4	29	19	35,313	62,775
Pennsylvania	96	100	87	90	5	5	4	5	257	236
Texas	127	156	60	83	10	13	57	60	29,585	70,036
West Virginia	..	17	..	3	..	13	..	1	...	50
Total	509	596	316	384	50	58	143	154	110,433	217,924
Increase this week	..	..	..	..	..	..	..	..	...	...
Decrease this Week	87	..	68	..	8	..	11	..	107,491	...

CALIFORNIA

Company, Well and Location	Initial Production Bbls.	Depth
BELRIDGE—		
The Ohio Oil Co., No. 31, 30-28-21	25	700
ELWOOD—		
Pacific Western Oil Co., No. 92	4500	3585
HUNTINGTON BEACH—		
Richfield Oil Co., Deter-Golay 1	125	3580
KERN FRONT—		
General Pet. Corp., Wetmore 2, 14-28-27	350	2010
LONG BEACH—		
California-Western Oil Co., H. D. 3	700	7110
Continental Oil Co., Denio 2	850	7485
Dabney-Johnston Oil Corp., No. 40	500	4650
D'Angelo Oil Co., No. 5	300	7407
Otis Hoyt, No. 3	950	7730
A. N. Macrate, Buffum 1	600	7005
MARICOPA—		
Birch Oil Co., No. 1, 7-11-23	900	2710
MT. POSO—		
Signal Oil & Gas Synd., Gilmore 7	200	1625
POTRERO—		
George F. Getty, Parker 1	1500	3845
RICHFIELD—		
Superior Oil Co., Jesson 1	300	4647
SANTA FE SPRINGS—		
W. S. Kyle No. 1	1500	6375
Associated Oil Co., Deewenter 6	2700	6760
A. L. Marsten, No. 2	1000	6855
Standard Oil Co., S. C. W. 23	1600	7830
Superior Oil Co., Wardman 7	7100	7870
Standard Oil Co., Deisel 13	1900	8033
Star Pet. Co., No. 3	500	6850
The Texas Co., Baldwin 3	2100	6875
Union Oil Co., Bell 29	3400	6860
SEAL BEACH—		
Continental Oil Co., Bixby 28	500	5555
SOUTH MOUNTAIN—		
The Texas Co.'s Willard 26	150	3710

OKLAHOMA

Company, Well and Loctaion	Initial Production Bbls.	Depth
CARTER COUNTY—		
E. M. Boring et al, Walker 6, se sw se nw, 10-4s-2w	104	2200
Wirt Franklin et al, Pruitt 14, sw nw nw, 3-2s-3w	160	3280
Ven Mex, See 2, ne sw se, 23-1s-3w	70	2769
Ven Mex, See 1, se sw se, 23-1s-3w	20	2725
Leonard Woodruff, Zellner 1, ne nw se, 32-4s-1e	*	2310
Magnolia, Heffner 8, sw nw sw, 33-1s-3w	*	4648
Magnolia, Johnson 5, ne se, 32-1s-3w	*	4455
CREEK COUNTY—		
Bay State, Thillaco 18, sw se nw, 9-18-7e	10	2590
A. B. Ice, Fulsom 7, nw sw sw, 13-17-10e	70	1939
H. L. Dedman, Sheppard 1, se sw, 17-17-10e	25	2143
J. H. Wright et al, Tahkaney 25, cnl nw nw, 24-17-10e	30	1883
Kurrell, Davis 2, se, 11-17-11e	10	1238
Texas Pacific Coal & Oil, Beaver 3, sw nw nw, 17-16-9e	10	2680
Skelly, Foster 2, ne se sw, 30-15-9e	75	3616
Logan and Kessler, Morton 2, se ne nw, 27-14-10e	20	3337
Prairie, Ladd 3, nw se, 18-16-9e	*	2841
E. H. Short et al, Asbury 1, ne sw, 1-19-8e	*	3012
Selby, Durant 6, c sw se ne, 18-16-9e	*	3048
GRANT COUNTY—		
Amerada, Clark 1, ne nw, 17-29-4w	1000	4785
Consolidated Gas Utilities, Stuarnky 1, sw ne, 14-27-3w	*	4681
HARPER COUNTY—		
Hoffer Oil Corp., Cooper 1, nw se, 14-25-22w	*	4053
KAY COUNTY—		
Harris and Haun, Kemmtz 1, nw sw se, 14-27-1e	*	733
Wentz, Harris 2, se nw, 31-27-2e	*	4160
KINGFISWER COUNTY—		
Crawford and McKenna, Stugeon 1, ne sw, 27-16-6w	*	4907
LOGAN COUNTY—		
Shell, McCully 7, nw se se, 30-19-4w	*	6169
McINTOSH COUNTY—		
W. S. Sessions, Smith 1a, csl sw nw, 22-12-14e	*	805
MARHALL COUNTY—		
Bilbo Oil Trust, Davis 2, nw se nw nw, 30-5s-6e	15	640
MUSKOGEE COUNTY—		
E. A. Hutchinson, Grayson 1, sw ne nw, 13-15-15e	*	1993
Bement, Bruner 1, cnl ne se, 15-13-16e	¶5	1852
OKFUSKEE COUNTY—		
Champlin, Jacobs 14, ne se se, 15-11-11e	8	1680
T. W. Atkins, Rhea 1, sw se ne, 14-10-9e	*	3377
NOBLE COUNTY—		
Midco Pet. Co., Case 15, ne sw nw, 29-24-1w	*	2024
OKMULGEE COUNTY—		
Sheridan, Friday 1, se ne nw, 24-15-11e	¶10	2244
F. D. Misener, Carter 4, se sw ne, 10-15-14e	5	1010
Mechlin and Berlin, Colbert 1, cwl se ne, 14-14-14e	6	1837
J. E. Wallace, Colbert 9, nw sw ne, 14-14-14e	12	1093
F. Sheedy, Meyers 15, nw se sw, 23-13-14e	7	1171
OSAGE COUNTY—		
Indian Territory Illuminating, 416, sw se se, 35-29-10e	*	533
A. G. Oliphant, 1, ne sw nw, 26-23-9e	*	2509
Peters and Producers & Refiners, 3, ne nw ne, 27-27-11e	40	1668
Nath Jones, 1, se sw, 2-26-8e	5	2392
The Texas, 8, se nw se, 30-25-8e	150	2488
Oklahoma Power & Water, 121, nw ne sw, 4-20-10e	¶½	428
PAWNEE COUNTY—		
Fisher et al, Pinkstaff 2, nw se, 16-21-7e	*	3093
Mowry and Fugate, Turner 1a, cwl nw nw, 18-20-8e	*	470
Geraldine, Edmiston 2, se nw sw, 30-21-9e	15	1118
PONTOTOC COUNTY—		
Empire, Norris 3, nw se nw, 19-5-5e	1005	2337
Independent, Norris 1, sw ne nw, 19-5-5e	190	2373
Benedum and Trees, Jacobs 1, ne sw sw, 28-5-5e	¶8	1458
Benedum and Trees, Moles 5, ne se ne, 31-5-5e	125	2560
POTTAWATOMIE COUNTY—		
Prairie and T. B. Slick, Laster 5, se sw ne, 19-6-4e	200	3633
Magnolia, Billington 4, sw ne nw, 2[illegible]-7-4e	¶8½	3663
Magnolia, Jones 2, ne nw se, 8-7-4e	45	3786
Darby, Youngblood 6, nw se nw, 16-7-4e	100	4084
Mid-Continent, Rogers 4, sw, 5-9-5e	310	4320
Commerce Development, Townlot 1, ne ne nw, 19-6-4e	40	3716
Darby, Youngblood 3, ne nw, 16-7-4e	*	4127
Phillips, Hudson 2, (OWDD) se ne nw, 19-8-5e	*	4496
SEMINOLE COUNTY—		
Magnolia, Anderson 1, ne nw, 5-8-7e	*	3527
Magnolia, Owens 1, ne se nw, 18-8-6e	*	4360
Gypsy, Mico 2, nw sw nw, 8-8-6e	*	4456
Prairie, Calkins 2, sw nw sw, 17-9-6e	2900	4260
Prairie, Wisner 1, se ne nw, 18-9-6e	2170	4283
Signal, Bond 3, ne sw ne, 13-6-7e	1250	4136
Burke-Greis, Lucy 5, se ne se, 18-5-8e	350	2626
Shell, Holatka 2, nw ne se, 7-6-8e	510	4160
Sinclair, Davis "A" 8, se sw se, 7-6-8e	25	4271
Gypsy, Walker 1, ne sw se, 5-7-7e	1805	4205
Gypsy, Payne 5, se ne, 5-7-7e	3360	4200
Gypsy, Payne 4, sw se ne, 5-7-7e	1940	4232
Empire, Coker 3, nw se sw, 13-7-6e	¶70	3117
Sinclair, Bean 5, nw ne nw, 11-8-5e	265	4226
Sinclair, Coody 3, se sw ne, 18-9-7e	280	4303
Continental et al, Perry 2, ne nw sw, 18-9-7e	130	4263
Magnolia, Anderson 6, nw sw ne, 18-9-6e	3250	4297
Gypsy et al, Payne 5, nw sw se, 18-9-6e	3725	4250
Minnehoma, Noe 1, sw nw nw, 19-9-6e	8935	4236
Gypsy, Noble 2, se nw ne, 18-9-6e	1385	4292
Barnsdall, Noble 1, ne nw sw, 18-9-6e	10	4248
Carter, Slick 2, nw sw, 11-9-6e	20	4003
Carter, Amerada 1, sw nw se, 11-9-6e	10	4064
Shell, Crump 2, ne sw, 32-10-6e	15	4106
Gypsy, Hulhoke 6, se ne se, 14-7-6e	¶20	3250
STEPHENS COUNTY—		
Jenkins et al, Bunch 1, ne sw ne, 21-2s-7w	*	1853
Pace et al, McMasters 10, nw nw se ne, 13-2s-8w	*	1459
Ven Mex et al, Gilworth "C" 1, c nw nw, 2-2s-8w	*	2487
Heydrick et al, Pool 3, sw nw sw sw, 35-1s-8w	*	1933
Pace et al, Marks 1, sw ne se, 13-2s-8w	25	1916
Magnolia, Marks 5, nw ne ne se, 13-2s-8w	7	1444
Roy Carter, Simpson 9, sw nw se se, 34-1s-8w	15	1930
TULSA COUNTY—		
W. C. Parks, Barnett 2, nw sw sw, 19-16-14e	5	1679
Hose et al, Harjo 1, sw, 2-19-10e	8	1781

KANSAS

Company, Well and Location	Initial Production Bbls.	Depth
BUTLER COUNTY—		
Arkansas Natural Gas, Campbell 1, se. 9-26-3e	35	2770
Empire, Hutchinson "C" 3, se ne nw, 34-27-5e	150	2755
Empire, Koogler 85, sw se nw, 20-26-5e	150	2584
Empire, Huston 17, nw se sw, 19-26-5e	75	2693
CHAUTUQUA COUNTY—		
E. B. Miller, Wiggam 3, nw se se, 33-32-10e	20	1540
COWLEY COUNTY—		
McNabb & Bess Drlg., & Prairie, Roberts 1, se ne ne, 7-33-3e	150	3499
GREENWOOD COUNTY—		
Walton, Dalton 1, ne sw nw, 5-24-13e	40	1640
Empire Patterson "C" 2, se nw se, 36-23-11e	400	1845
Phillips, Beal 4, ne, 28-23-11e	200	1955
Dixie and Amerada, Ellis 1, nw, 27-23-11e	200	1920
Empire, Edwards "B" 5, se, 21-23-11e	500	1935
McCullough et al, Hunchman 1, nw sw ne, 17-24-13e	*	1617
Simmons et al, Clopton 7, ne nw, 18-22-11e	*	2191
HARVEY COUNTY—		
Rosenthal et al, Ingalls 1, c nw sw, 24-23-3w	*	4060
KINGMAN COUNTY—		
D. P. Fleeger et al, Rayl 1, se ne ne nw, 21-27-7e	*	1350
OSBORNE COUNTY—		
Trees, Payenter 1, ne se se, 22-6-15w	*	3650
SEDGWICK COUNTY—		
John Rogers, Jondro 1, sw se sw sw, 15-26-2e	145	3225
Hays et al, Townlot 2, se sw se sw, 15-26-2e	290	3202
Milmac, Stuckey 1, nw 22-28-1e	*	3520
Lario, Calkins 1, sw se, 7-27-2e	*	3403
Old Trail et al, Schweiter 1, se, 27-27-1e	*	3404
G. L. Ramsey et al, Mason 2, ne se sw sw, 15-26-2e	*	3282
Skelly, Krocher 1, ne nw, 11-26-2e	*	3205
WOODSON COUNTY—		
Harper, Reed 1, nw se, 28-23-14e	10	1652
ELK COUNTY—		
Elk Pet., Kayser 9, nw ne ne, 9-30-9e	*	2775
Union Gas et al, Schul 1, c se nw, 1-31-9e	*	1595

EASTERN STATES

PENNSYLVANIA

Company, Well and Location	Initial Production Bbls.	Depth
BRADFORD FIELD—		
South Penn Oil Co., Taylor, 41	2	....
Burdick, 75	2	....
Borden, 05	Pres.	....
Smith, 193	2	....
Smith, 195	2	....
Smith, 196	2	....
Bingham 439, tr. 124	3	....
Bingham 212, tr. 1	2	....
Jones, 7	2	....
Jones, 8	2	....
Jones, 9	2	....
Midland-Taylor, 42	2	....
Enterprise, 4	2	....
Culbertson, 83	2	....
Hazlewood Oil Co., Lot 23 tr. 168	2	....
Lot 23 tr. 166	2	....
Lot 23 tr. 172	2	....
Lot 23 tr. 178	2	....
Healey Pet. Co., Healey, 19	2	....
Healey, 20	2	....
Healey, 21	2	....
Healey, 1	Pres.	....
Grant & Mchan, Fee 6	4	....
Bingham 472 tr. 17	3	....
Lillie Oliver, Franchot 5	3	....
W. F. Kriz, Franchot, 2	3	....
E. C. Murphy, 2	2	....
J. B. Jamison, Kemp 4	3	....
Olean Pet. Co., Fee, 9	3	....
Fee, 10	3	....
W. C. Kennedy Co., Kennedy, 15	4	....
Harris Oil Co., Bingham 188 tr. 2	4	....
Wright & Saph, Bingham 294 tr. 17	3	....
Victor Schopperle, Duke, 8	2	....
Duke, 9	2	....
Duke, 10	Pres.	....
Lane & Co., Bingham 171 tr. 58	2	....
Bingham 171 tr. 59	3	....
D. W. Daly, Bingham 189 tr. 65	7	....
Bingham 189 tr. 66	4	....
Wilson, Patton & Co., Boreden, 1	7	....
J. Roggenbaugh, Roggenbaugh, 5	5	....
Hope Oil Co., Hope, 7	4	....
C. H. Williams, Moore, 1	4	....
Sunny Oil Co., Borden, 6	4	....
G. A. Simpson, Simpson, (three wells)	Pres.	..
Dallas Oil Co., Ekas, 19	7	....
H. E. Kemp Est., Bingham, 6	4	....
Mix-Creek Oil Co., Mix-Creek, 72	2	....
Mix-Creek, 73	2	....
G. A. Duke, Hemlock, 6	2	....
McSweeney & Co., Lawton, 1	2	....
C. E. Potter, Russell, 8	4	....
Williams & Schorman, Chambers, 3	3	....
Smeithport Oil Co., Ada L. Ore, 3	2	....
R. O. Landers & Co., Landers, 22	4	....
Jane Zane Est., Quintnuple, 19	2	....
A. Schorman, Duke, 21	3	....
A. Kinley & Co., Alexander, 7	3	....
R. S. Pringle, Bingham 164 tr. 31	2	....
McCullum & Co., Bingham 291 tr. 96	3	....
T. H. Kervin, Jr., Kapp, 17	3	....
S. S. Elder & Co., Wright, 21	3	....
Smith Oil Co. & Co., Baldwin, 4	5	....
C. C. Rice & Co., Weston, 1	2	....
Esther Oil Co., Bingham 212 tr. 18	2	....
L. F. Kinley & Co., Mantz, 8	2	....
T. H. Kennedy, Corwin, 1	2	....
W. T. Piper, Borden, 14	2	....
T. P. Thompson, Jr., Gilpin, 14	2	....
J. Mommer, Gilfillan, 1	4	....
Staley & Luke, Borden, 1	2	....
Denis & Co., Denis, 4	3	....
Iona D. Miller, Quintruple, 2	Pres.	....
Grow Farm Oil Co., Grow, 4	2	....
J. W. Kauffman, Rasey, 1	Pres.	....
Linwood Oil Co., Linwood, 1	Pres.	....
H. P. McKalip & Co., Bingham, 1	Pres.	....
Evans & Co., Bingham 128 tr. 1	Pres.	....
Alma B. Collins, Bingham 547 tr. 1	Pres.	....
BUTLER COUNTY—		
Heck Oil Co., Cole, 1	¶1	....
A. V. Reiger & Co., Reiger Hrs, 1	2	....
M. B. Finnessy, Snyder, 16	2	....
E. C. Dunlap, McIntosh, 1	*	....
Russell & McCandless, Harper, 4	2	....
CLARION COUNTY—		
L. B. Shannon, Seper, 32	*	....
Dempsey Gas Co., Sheets, 7	*	....
VENAGO COUNTY—		
Mrs. Addie Myers, Myers, 1	*	....
L. H. Kistler, Crawford 4	2	....
R. A. Hughes, Hughes, 71	3	....
Hovis & Bowers, Ghost, 15	2	....
E. A. Burch, Fowler, 15	2	....
R. M. Calvert, Valvert, 7	2	....
Lamberton & Ramsey, Cunningham, 17	2	....
Franklin Trust Co., Martin, 24	2	....
C. V. Simon, Simon, 4	2	....
McElpatrick, Fee, 26	2	....
W. J. Corse, Gill, 27	2	....
L. E. Keverline, Schwab 10	2	....
Stiner & Shaffer, Van Camp, 1	2	....
Bonnett & Hann, Bissell, 7	2	....
GREENE COUNTY—		
Carnegie Nat. Gas Co., Nichols, 2	¶¼	....
Peoples Nat. Gas Co., Fox, 1	¶1	....
Eddy Johnson & Co., Cummings 2	¶1	....
Hope Construction & Ref. Co., Adleman, 2	¶1	....
ALLEGHENY COUNTY—		
Glenshaw Oil Co., Uhl, 1	25	....

WEST VIRGINIA

Company, Well and Location	Initial Production Bbls.	Depth
ROANE COUNTY—		
United Fuel Gas Co., Chapman, 3929	¶2	....
Young, 1955	¶1¼	....
Hope Construction & Ref. Co., Enoch, 1	25	....
Reed Oil Co., Haught, 1	8	....
D. W. Law & Co., Faugh, 1	10	....
GILMER COUNTY—		
South Penn Oil Co., Ames, 1	10	....
W. Va. Utility Co., Bush, 1	¶1¼	....
Carnegie Nat. Gas Co., Rymer, 2	¶1¼	....
Stout, 1	¶1¼	....
BOONE COUNTY—		
Riverhead Gas Co., Nelson Hrs, 1	¶1½	....
Ira G. Sayer, Skinner, 1	¶¼	....
Skinner, 2	¶¼	....
Hope Nat. Gas Co., Bias, 7234	¶1½	....
CALHOUN COUNTY—		
G. L. Cabot, Rafferty, 9	5	....
Hope Nat. Gas Co., Unknown, 7266	¶1½	....
C. B. Lewis, Wathaway, 2	*	....
F. F. McIntosh, Riddle, 3	¶1¼	....
RITCHIE COUNTY—		
South Penn Oil Co., Beckerstaff, 8	18	....
C. G. Piggott, Lentz, 1	*	....
Forrest Maxwell & Co., Ridgeway, 1	*	....
MONONGOLIA COUNTY—		
Philadelphia Gas Co., Keck, 2	5	....
Moore, 1	¶2	....
Philadelphia Oil Co., Readley, 3	*	3510
MARSHALL COUNTY—		
Frye & McCracken, McGinnis, 1	¶2	....
C. B. & A. C. Patterson, Lindsay, 1	¶2	....
CLAY COUNTY—		
South Penn Oil Co., Stockley, 99	15	....
JACKSON COUNTY—		
Parsons O. & G. Co., Stracher, 1	4	....
LINCOLN COUNTY—		
United Fuel Gas Co., Horse Creek Land, 2973	¶¼	....
LOGAN COUNTY—		
Clendin Gas Co., Boone County Coal, 4	¶¼	....

KENTUCKY

Company, Well and Location	Initial Production Bbls.	Depth
BARREN COUNTY—		
C. F. Stumbo, Williams, 1	60	....
MUHLENBERG COUNTY—		
James C. Ellis & Co., Woodson, 1	150	1600
Wood Oil Co., Shaver, 1	*	....
E. M. Treat & Co., Martin, 1	*	1250
DAVIESS COUNTY—		
Raydure, Duncan & Co., Yeiser, 2	75	935
Trognite O. & G. Co., Trodgen, 7	15	....
H. C. Smith Oil Co., Montgomery, 1	*	....
OHIO COUNTY—		
Wood Oil Co., Duke, 13	¶5½	....
Weir, Stewart & Co., Muffett, 1	¶¼	....
Armistead Oil Co., Miller 1	¶2	....
Ohio Oil Co., Kirk, 15	100	....
Kirk, 16	*	....
Sirman's Co., Farmer, 25	100	....
Hupp & Duff, Mason-Bartlett, 2	250	....
Mason-Bartlett 3	400	....
J. C. Ellis & Co., Payne, 1	150	....
Ralph, 4	10	538
Cumberland Petroleum Co., Wade 2.	200	....
Rex-Pyramid Oil Co., Rhodes, 1	200	....
C. E. Daugherty & Co., Funk, 2	35	....
H. L. Ogle & Co., Royal, 12	25	....
Royal, 13	30	....
Royal, 14	30	....
Royal, 15	100	....
Daly & Lowman, Whittaker, 1	*	....
Russell & Randolph, Brown, 1	*	600
H. C. Smith Oil Co., Kelley, 6	*	....

SOUTHEASTERN OHIO

Company, Well and Location	Initial Production Bbls.	Depth
WASHINGTON COUNTY—		
Benjamine Hood & Co., Hood, 5	2	....
C. S. Hickson & Co., Ellis, 2	2	....
Yellow House Oil & Gas Co., Davis, 3	*	....
MONROE COUNTY—		
Sylvania Producing Co., Winland, 7	70	1427
Canton Oil Co., Cavanaugh, 1	*	1798
MORGAN COUNTY—		
Swissvale Oil & Gas Co., Mendenhall, 2	¶¼	1637
Ohio Fuel Gas Co., Fitch 2	¶½	1562

CENTRAL OHIO

Company, Well and Location	Initial Production Bbls.	Depth
ASHLAND COUNTY—		
Ohio Fuel Gas Co., Oswalt, 1	¶¼	....
Martin, 1	*	....
Robinson & Co., Moore, 3	3	553
Shaffer, 2	*	609
Emerick, 1	*	550
Metzger & Co., Ott, Sr., 2	5	748
Edmonds & Co., Horn, 1	¶¼	45 670
Shetler & Shetler, Township Lot, 1	*	590
Garn-Woodward Oil Co., Shaner, 2	4	607
Davis & Co., Chesrow, 3	*	597
HOCKING COUNTY—		
Preston Oil Co., Sunday Creek Coal, 75	100	....
Farmer Bros., Brown, 1	400	....
Hope Construction & Ref. Co., Mercer, 3	50	....
Perry Strum & Co., Woodruff Hrs, 6	10	....
PERRY COUNTY—		
Palmer & Geisinger, Lazelere, 1	75	3564

Company, Well and Location	Initial Production Bbls.	Depth
Guthrie & Co., Cannon, 1	¶1	3490
Kisling Drlg. Co., Clark, 5	¶¼	264
Ohio Fuel Gas Co., Brown, 1	*	3692
LICKING COUNTY—		
Everette Gas Co., Flenner, 1	90	3001
Bishop, Dettry & Co., Hoskinson, 1	¶¼-2	834
Hope Construction & Ref. Co., Evans, 1	60	1756
MEIGS COUNTY—		
Frick & Barnaby, Genheimer, 7	8	1911
Tyree & Co., Lott, 3	4	1804
Bowman & Deem, Price, 1	*	661
JACKSON COUNTY—		
Ohio Fuel Gas Co., Alshire, 1	¶1¼	2447
Spohn, 1	¶½	2662
Penn Oil & Gas Co., Henson, 1	*	2851
MUSKINGUM COUNTY—		
Athey Drlg. Co., McLaughlin, 1	¶7	3951
Stoltz & Johnson, Coleman, 1	*	4127
Midland Oil Co., Denney, 4	*	3177
COSHOCTON COUNTY—		
Fender Oil Co., Reuss, 1	¶¼	832
Pure Oil Co., Anderson, 3	50	2993
MEDINA COUNTY—		
Ohio Fuel Gas Co., Jones, 1	¶1¼	....
Oko O. & G. Co., Sanford & Watson, 28	10	355
RICHLAND COUNTY—		
Ohio Fuel Gas Co., Schrack, 2	¶3½	....
Snyder, 2	¶1½	....
SUMMITT COUNTY—		
F. A. Brendall & Co., Ritter, 1	¶1	3609
G. W. Crouse, Crouse, 2	¶3	4142
FAIRFIELD COUNTY—		
Heisey Gas Co., Smith & Co., 2	¶½	2414
City Nat. Gas Works, Mayer, 2	¶¼	1878
HOLMES COUNTY—		
East Ohio Gas Co., Achmier, 1	¶1	3473
WAYNE COUNTY—		
Murphy Bros., Ryall, 3	*	558
ATHENS COUNTY—		
Chas. Fox & Co., Bean, 4	*	215
GUERNSEY COUNTY—		
Pure Oil Co., Chapman, 3	*	857

NORTHWESTERN OHIO

SENECA COUNTY—		
Geyer & Shaul, Ferr, 1	1	1776
Milligan & Faucett, Stahl, 1	¶¼	1473
W. C. Richards & Co., Rosenberger, 1	*	1608
Marshall Bros. & Co., Drosius, 1	*	1611
SANDUSKY COUNTY—		
Gibsonburg Oil Co., Fought, 3	15	1337
W. C. Richards & Co., Waggoner, 6	30	1334
WOOD COUNTY—		
Lantz & Co., Achenberger, 2	10	1288
Home Banking Co., Foos, 3	5	1286
ALLEN COUNTY—		
B. L. Carman & Co., Powell, 4	5	1414

INDIANA

GIBSON COUNTY—		
Texana Oil Corp., Volkman, 2	¶2½	1688
DAVIESS COUNTY—		
Kern & Lee, Findlay, 1	¶1	584

ILLINOIS

ST. CLAIR COUNTY—		
Wm. J. Abbott, La Croix, 1	45	550
Jim McPeak, Lindeman, 1	20	547
Chas. E. Knox, Otten, 1	45	540
Ohio Oil Co., Dyroff, 10	100	554
H. & M. Operating Co., Bryant, 1	35	532
Lee & Hoffman, Duncan, 1	10	542
Rudolph, 1	30	540
Z. Victor Szabados & Co., South, 1	25	535
Otto Karbe, Daab, 1	18	545
Ostos Pague & Co., Mason, 1	20	552
W. S. Avery, Proffer, 2	50	526
Cole, Esther & Co., Iles & Krack, 1	60	540
Lon Coleman, Dupo City School Lot, 2	25	524
Sugar Loaf Oil Co., Bruer, 4	18	528
WABASH COUNTY—		
Ridge Farm Oil & Gas Co., Schaffer, 1	*	1610
LAWRENCE COUNTY—		
Snowden-McSweeney, Piper, 35	10	1537

MICHIGAN

MUSKEGON COUNTY—		
Dixie Oil Co., Figge, 1	¶5¼	1990
Reed Oil Co., Torrent Estate, 4	150	2020
Fred Estes & Co., Page, 3	150	2062
Shoup O. & G. Co., Shoup, 6	75	2024
Sterling Oil Corp., Shuler, 7	100	2070
Johnson O. & R. Co., Thompson, 15	15	1670
White River Oil Corp., Neuerdorff, 1	*	....
Creek Land Dev. Co., Shorr, 1	*	....
OTTAWA COUNTY—		
Ottawa Pet. Corp., Comstock-Konke 1	*	3116
OCEANA COUNTY—		
Sankey O. & G. Co., Darlington, 1	*	2796
NEWYAGO COUNTY—		
Shell Pet. Corp., Reddeman, 1	*	3116
MECOSTA COUNTY—		
Big Rapids O. & G. Co., Anderson, 1	*	3742

TEXAS

TEXAS PANHANDLE

CARSON COUNTY—		
Champlin Ref. Co., J. W. McConnell 4	50	3095
COTTLE COUNTY—		
Sun Oil Co.-Continental et al, Yarborough 1	*	4540
GRAY COUNTY—		
Adams Oil Co., J. S. Morse 3	150	2534
Humble O. & R. Co., Wm. Jackson 1	¶15-2440	3036
Mordyan O. & G. Co., M. B. Davis 2	¶15-725	2726
Sherwood et al, Gethings 1	60	2821
The Texas Co., M. B. Davis 4	925	2680
M. B. Davis 5	600	2675
P. A. Tharp et al, B. E. Finley 1	250	3016
Wilcox O&G Co., Coombs-Worley 9	240	2956
HUTCHINSON COUNTY—		
McMan O&G Co., J. M. Sanford 2	¶10	3153
Mid-West Explo. Co., J. L. Moore 2	200	3100
Pennowa Oil Co., Smith 3	125	2920
WHEELER COUNTY—		
Angus et al, E. A. Linkey 1	¶40	2127
Johnson et al, C. Hicks 1	¶30	1835
The Texas Co., B. P. Sewell 2	¶17	1901

NORTH TEXAS

ARCHER COUNTY—		
P. F. Gwynn et al, Thompson 6	*	1602
Prairie O&G Co., Richardson 2, (lot No. 12)	*	1250
BAYLOR COUNTY—		
Humphreys et al, Gykorka 1	*	1461
CLAY COUNTY—		
R. T. Belcher et al, Evans 5	25	1782
Lone Star Gas Co., Stine 22	35	1775
Mid-Continent Holding Corp., Evans 2	¶1¼	1770
L. C. Hirvick et al, Myers 2	*	1370
COOKE COUNTY—		
Benson Bros. et al, Hess 1	17	767
Coline Oil Co., Huggins 2	110	1167
Lloyd Oil Corp., Newman 1	*	3008
Shell Pet. Corp., Field-Bowers 6	70	1197
GRAYSON COUNTY—		
F-H-E Oil Co., Bryant 1	*	1510
WILBARGER COUNTY—		
C. P. Burton et al, Waggoner 5-1	40	1877
Derby Oil Co., Waggoner 1-D	*	2493
Empire G&F Co., Waggoner 11-A	100	2307
Waggoner 13-C	150	1898
Staley-Wynne & Co., Waggoner 13-G	145	2316
YOUNG COUNTY—		
Panhandle Ref. Co., et al, Kunkel 1	*	1190
Sharp et al, Edwards 1	*	1300
Smor Oil Co. et al, Petty 1	*	427

NEW MEXICO

EDDY COUNTY—		
Flynn-Welch & Yates, Gissler 2	80	3615
Prairie O&G Co., Keel 2	110	3600

CENTRAL WEST TEXAS

BROWN COUNTY—		
Amerada Pet. Corp., Edmondson 3	*	1377
Bearman et al, Miller 6	35	1092
Humble O&R Co., Kilgore 16-B	55	1195
Lloyd Oil Corp., Duff 5	3	1156
S. B. Owens, Inc., Cannon 4	30	1146
E. L. Smith Oil Co., George 6	300	1315
The Texas Co., Kessler 4	255	1292
Kessler 5	300	1308
Ven-Mex Oil Co., Hickman 7	†	430
EASTLAND COUNTY—		
T. P. Coal & Oil Co., Higginbotham 5	*	4106
ERATH COUNTY—		
Peters et al, Fulfer 1	¶½	3565
PALO PINTO COUNTY—		
Bolin & Lindsey, Costello 3	30	1477
Jack Dalton Oil Co., Dalton 7	*	4167
Hughes et al, Perkins 1	*	4010
Reinhart Bros., et al, Weldon 1	*	4130
Stiff Oil Co., Costello 1	*	2560
SHACKELFORD COUNTY—		
P. K. French et al, Dawson 1	*	1715
Kiser & Grace, Jenkins 1	*	900
Merry Bros. & Perrini, Newell 1	*	1541
Moutray Oil Co., Jenkins 1	*	1340
S. B. Owens, Inc., Nail 1	*	1417
Roeser-Pendleton, Inc., Nail 1	*	2002
Tannehill et al, Newell 25	30	925
Vacuum Oil Co., Matthews 6-A	60	1155
STEPHENS COUNTY—		
Conway Bros. et al, McClure 1	*	2110
Loftin-Jordan et al, Smith 1	¶4	1861
Lone Star Gas Co., Townsend 1	*	4088
McLaren et al, Jackson 1	*	3880
Prairie O. & G. Co., Lee 3	*	4050

WEST TEXAS

CRANE COUNTY—		
Church & Bert Weekly, University-Duoll 3	50	3025
CROCKETT COUNTY—		
W. W. Donnelly & J. D. Young, Powell-Shannon 1	200	2556
GLASSCOCK COUNTY—		
Schermerhorn Oil Co., Phillips 1	1700	2291
Sun Oil Co., Phillips 1	960	2292
HOWARD COUNTY—		
Continental Oil Co., Chalk 5-C	75	1905
Godley O&G Co., Hooks 16	165	1872
Merrick & Lamb, Clay 9	155	3230
Ward Oil Co., Roberts 12	85	1378
PECOS COUNTY—		
The California Co., Smith 8, Lse 1, (Sec. 23)	7400	1583
Taylor-Link Oil Co., University 3	300	1622
WINKLER COUNTY—		
American-Maracaibo Co., Hendrick 2-B	25	3416
Atlantic Oil Prod. Co., Hendrick 6	350	2899

TEXAS GULF COAST

BARBERS HILL—		
Yount-Lee Oil Co., Chambers Co. Agr. Assn. 4	*	8150
BOLING—		
Sun, E. C. Farmer 8	*	1620
GENOA—		
Humble, O. P. Woodburn 1	*	5772
GOOSE CREEK—		
Humble, Gaillard-Penn 30, dd	20	4330
HANKAMER—		
Gulf, Boyt 2	500	2925
HULL—		
Republic Prod. Co., Dolbear 109, dd	225	2780
HUMBLE—		
Sun Oil Co., River 47	*	6067
South Texas Pet. Co., Morris 10	700	5372
NORTH DAYTON—		
Harrison Oil Co., Quintette 4	¶15	4120
RACCOON BEND—		
Humble-Valley, Grawunder 2-C	1200	3410
R. R. Jackson 2	650	3385
REFUGIO—		
Mission Drlg. Co., O'Brien 1	¶30-400	5523
Houston Oil Co., Rea 2, town tr.	¶50	3673
SOUTH LIBERTY—		
Sun Oil Co., Mitchell 49	1000	3530
Empire, O'Brien 5	1600	3500
SPINDLE TOP—		
Yount-Lee Oil Co., Gladys City 58, wo	660	4150
Gladys City 61, wo	65	3241
McFaddin 113	20	4737
McFaddin 115	*	3707
SUGARLAND—		
Humble, Brazos Farms 7	860	3580
Brazos Farms 9	560	3537
PIERCE JUNCTION—		
Abercrombie & Harrison, Ritter 1, dd	1200	4630
Anderson & Plummer, Whitehead 3, dd	800	4540

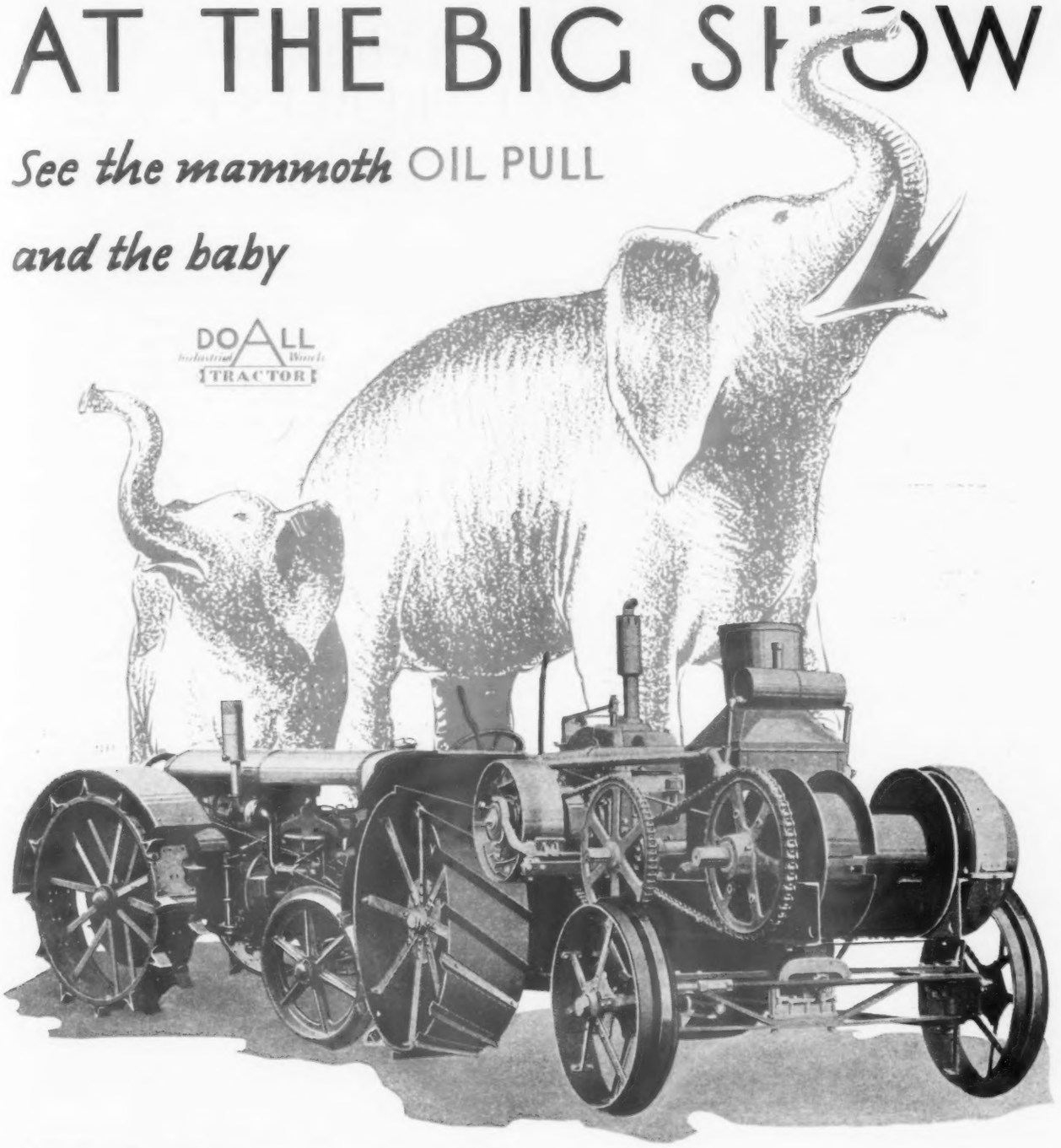
SOUTH LOUISIANA

EAST HACKBERRY—		
Calcasieu Oil Co., Lemke 3	500	3900
EVANGELINE—		
Kathleen Oil Co., Synd. Clement 1	300	3920
HACKBERRY—		
Sunshine Oil Co., Porter Ellender 2	1000	3303
Porter Ellender 3	1000	3319
Yount-Lee Oil Co., School Lands 9	*	6013
LAKE BARRE—		
The Texas Co., Lake Barre A-2, Sec. 30-21s-20e.	1680	3840

AT THE BIG SHOW

See the mammoth OIL PULL

and the baby



BOOTHS 1-2 & 3

PENNSYLVANIA AVENUE ARCADE

RUMELY OIL PULL TRACTOR

~Send all inquiries and orders to - - -

FRED E. COOPER

Special Rumely Representative and Developer of Oil Field Machinery

18 S. MADISON TULSA, OKLA.

TEXAS

SOUTHWEST TEXAS

Company, Well and Location	Initial Production Bbls.	Depth
BEXAR COUNTY—		
Eckert et al, Sendamar 1, M. Manchacha Sur. 52	5	616
Morgan et al, Martin 1, P. Villapando Sur. 142	*	1040
Switzer et al, F. J. Walsh 1, I. Perez Gt.	*	435
DALE—		
Humble, A. M. Barber 1, Squire Damon Sur.	*	2293
KIMBLE COUNTY—		
E. M. Wachlenmaier, G. C. Anderson 1, B. Hubbinger Sur. 167...	*	1000
KLEBERG COUNTY—		
Humble, Flato 4, Kingsville	*	6922
MEDINA COUNTY—		
Armstrong et al, J. Fohn 1, J. F. Torrey Sur. 111	*	600
MENARD CONUTY—		
Carl Cromwell et al, R. S. Winslow 1, T. & N. O. Sur. Sec. 32.....	*	3210
WEBB COUNTY—		
Trapshooter Reilly, J. Benavides 2, Sur. 685, Carolina-Tex.	100	3076
ZAVALLA COUNTY—		
Mission Drlg. Co., West 1, Margarita Suniza Sur. 44	*	1500

EAST CENTRAL TEXAS

BURLESON COUNTY—		
Rita O. & G. Co., J. P. Sparks 3, H. E. Davis Sur. 6	*	1844

EAST TEXAS

PANOLA COUNTY—		
Magnolia Pet. Co., C. B. Steele 16, B. C. Jordan sur	¶¾	2292

ARKANSAS

UNION COUNTY—(Smackover)—		
Lion O. R. Co., Flenniken A-8, 10-16-15	15	2396

NORTH LOUISIANA

CADDO PARISH—		
Oil City Oil Co., Curtis 6, 10-20-16..	6	2393
MOREHOUSE PARISH—		
S. D. Hunter, Allison 10, 18-20-5e ..	¶5	2202
OUACHITA PARISH—		
Ark. La. Pipe Line Co., McEnery 3, 28-19-4e	¶4	2198
Austin & Jordan, Wall 2, 11-18-3e..	¶2	2228
Southern Carbon Co., Fairbanks 13, 4-19-4e	¶5	2166
RED RIVER PARISH—		
Joe Danciger, Pickett 1, 26-13-11...	†	855
J. H. Askew, Lockett 1, 33-13-10..	15	2820

Commodity Exchanges

"Commodity Exchanges," by Julius B. Baer and George F. Woodruff, book supplies the first complete description of every phase of the operation of commodity exchanges, and their place in the commercial world. Describing the evolution of the modern exchange, the authors explain the workings of the futures contract and the difference between the cash and futures markets. The authors consider the government, organization and internal machinery of exchanges and their allied institutions, clearing associations, together with methods of trading on the exchange floor. Here are told the ways of facilitating buying and selling at any time, stabilization of prices, prevention of corners and squeezes, basis contracts, use of warehouse receipts in trading, and the other advantages which commodity exchanges offer. The book closes with a description of the legal phases of the subject—how the courts have ruled, present status of government regulation, etc. Throughout, the emphasis is on the value of the exchange to the various individuals who at one point or another have to do with commodities.

Letters of PAUL PEEBLES P. S. G.

Last time we heard from Paul he was in Austin, Texas, attending a conservation meeting. Now we find him out in California helping settle the troublesome question of surplus gas, etc.

Los Angeles, Cal.

Miss Cleopatry Cribbents,
Goose Creek, Tex.

my deer cleopatry:

I know honey that you will be mighty glad to hear that I am out hear in the golden west were at last oil conservation is being put to a reel test. I was called out to settle some vitul questions of procedure wich means how to do it.

And since I come out we have increased the amt of production by a great deal of percent (%) wich I believe is what they want to do when everybody starts conserving.

I just been out to Kettleman hills where I assisted the standard oil company of Californy (wich is a sort of half brother wich went away from home, of the other standard oil companies, and wich has done quite well thank you in the oil business). I perdict a great yr for the Standard Oil company of Californy this yr because the president of it has got the hang from eastern oil company presidents of how to issue pessimistic statements when the profits is going up, and he made a pessimistic statement the 1st of this yr. Well, i broughten in Kettleman Hills well, No. 2, wich come in under my management making about 7,000 bbls of oil and everybody else sore. The oil is better than 60 gravity (and is 86 percent (%) gasoline) wich is better than some bootleg gasoline I know of.

This well proves conclusively that the 1st well there was a freak, because the 2d well is a better 1.

And insidentally, I just worked out why the oil in these Kettleman Hills wells is almost pure gasoline and my discovery will revolutionize the oil refining business thruout the world.

Here is how it is:—These wells is more than 7000 feet deep and the oil is put to a high frickshun in going to the top of the hole and just nacherly gets refined on the way up. If they would put the top of the pipe about 2,000 (two thousand) ft above the top of the ground I got it figured out it would be entirely pure gasoline. Here is how my discovery will revolutionize the oil refining business. If these oil drillers will just drill their wells deeper, or will flow them out of the pipe about several thousand feet above the top of the hole we can do away with refineries altogether which wood cut out the middleman and make a reel profit for the producer. I am going to suggest this to the A P I for considerashun at Chicago.

While out here I got the reel lowdown on why they are drilling so many wells in Californy. You see the government has been studying the sitiation and have figured it out that some day they will have a big landslide and a great earthquake which will be a turrible thing. So these Californy oil men has started out to stop it. Here is how it works:

Put one slice of watermelon on top of another slice (pervided you can get 2 slices ((if you can't get 2 slices you needn't try it))) and if you tilt these 2 slices one will slide which is what the government experts figgered out will happen in Californy. Now, if you will stick some toothpicks into one slice down thru the other slice it will not slide.

So the Standard oil company is drilling oil wells and putting down hevy casing at Kettleman Hills for no other purpose than to perteck their investment in their big bldgs in San Francisco & Los Angules.

Don't let nobody tell you no different. They do not want the oil but they are just trying to stop a landslide.

I was explaining my theory to a fellow I know and he said that insofar as the oil industry was concerned, he couldn't see no diferents between the effect of drilling these wells in California with all the new oil they are getting out, and a earthquake, but he is a ordinary business feller and don't know nothing about the oil business.

Paul Peebles, P. S. G. C. E.
With love, yours,

Prairie Will Make Test On Porcupine Dome

Forsythe, Montana.—The Prairie Oil & Gas Company will drill a deep test on Porcupine dome, one of the largest structures in Montana, which lies for the most part in Rosebud County. The holdings of the Stellar Oil Company have been taken over by the above company. There have been seven shallow wells drilled by the Stellar on this structure, but recent geological surveys would seem to indicate that none were deep enough to have penetrated producing sands which are held to be assured. Material and equipment are moving in, and the well is to be started as soon as possible.

"as strong as the pipe itself"

HEADER INSTALLED IN GAS STATION, COMPRESSOR, STERLINGTON, LA.

Fabricated for Henry L. Doherty & Co., Engineers, for Republic Construction, Monroe, La. 400 lb. working pressure. 20"O.D.x ½"L. W. Pipe, 16"and 8"ATWOOD "Interlock" Necks. Just to the right of 16" neck (center one) is an ATWOOD Line Weld.

ATWOOD Welded Piping

THE Sterlington, La. Installation, features the "Interlock" Welded Neck and the ATWOOD Line Weld, both developed by the ATWOOD Pipe Fabrication Department . . . based upon seventy years' close contact with Industrial and Power Piping . . . to meet the extreme conditions demanded of modern high pressure lines, for whatever service intended.

The success of ATWOOD Piping depends entirely upon the strength of the wrought material . . . always a known quantity . . . and is independent of the welding.

We make a specialty of taking care of unusual conditions and will be glad to submit designs and estimates upon receipt of specifications.

Many of the largest Piping Installations *all over the world* are ATWOOD designed, fabricated, and even installed . . . No doubt ATWOOD Service can greatly aid you in the solution of your problems. Further information will be gladly furnished upon request.

Send today for ATWOOD Oil and Gas Bulletin 100.

PITTSBURGH VALVE, FOUNDRY & CONSTRUCTION CO.

PITTSBURGH ~ PENNA.

DISTRICT OFFICES

New York City	30 Church Street
Chicago, Ill.	80 East Jackson Blvd.
Boston, Mass.	185 Devonshire Street
Cleveland, Ohio	858 Rockefeller Bldg.
Dallas, Texas	1314 Southwestern Bldg.

REPRESENTATIVES

Detroit, Mich.	Garrett Burges, Inc., Woodbrook Bldg.
Houston, Texas	Maintenance Eng. Corp., 1400 Conti Street
Atlanta, Ga.	Moore-Broach Eng. Co., Forsyth Bldg.
Philadelphia, Penna.	R. J. Crozier Co., 10 South 18th Street
Los Angeles, Cal.	John G. Bell Co., 712 East Sixth Street
Toronto, Canada	A. G. Hill, 45 Jarvis Street

Founders Since 1825 Valves and Fittings Since 1866

WILDCATS FROM ALL SECTIONS

SOUTHWEST TEXAS

Completions

Company, Well and Location	Initial Production Bbls.	Depth
CALDWELL COUNTY—		
Humble, Barker 1, Dale	*	2236
GUADALUPE COUNTY—		
Carl Bros., Powers 1, 2 mi n Kingsbury	*	2210

BASTROP COUNTY—Harper's Mitchell 1, Bastrop, sd. T. C. Hadley's Kiehl 1, dr 2700 ft shale. Howell et al's Weckham 1, 2 mi s Paige, sd 1700 ft. Pacific Oil Co.'s Donnell 1, 10 mi w Bastrop, dr 2040 ft chalk. Sun's Anderson 1, 4 mi w Cedar Creek, dr 1210 ft shale.

BEE COUNTY—Mission Drilling Co.'s Ray 4, gas show at 2705-20 ft; Ray 5, lcn. Houston Oil Co.'s McKinney 1, sp. The Texas Co.'s Ruhman 1, dr 100 ft.

CALDWELL COUNTY—Harper's Thomas 1, 2 mi e Lockhart, lcn. Radcliff et al's Caldwell 1, 4 mi n Lockhart, dr 1700 ft shale. Callahan et al's Ellison 1, 3 mi n Luling, dr 2753 ft shale. Calico Oil Co.'s Thomas 1, 2 mi e Lockhart, dr 1770 ft shale. Humble's Barker 1, Dale, abn 2236 ft. Smilox Oil Co.'s Wunster 1, 3 mi e Luling, dr 2000 ft shale. Harrasch's Dzinzouski 1, 6 mi nw Lockhart, lcn. Buchanan et al's Cude 1-A, Dale dr 1500 ft.

GOLIAD COUNTY — Mission Drlg. Co.'s Ray 3, Pettus, tested gas and salt water at 4266-75 ft. Humble's Spangle 1, 5 mi n Goliad, dr 415 ft. Zoch et al's Kaufman 1, 2 mi nw Goliad, dr 1600 ft gbo.

GONZALES COUNTY — Linderman Bros.' Frampton 1, 1 mi n Waelder, dr 1235 ft lime. Joe Bruner's Miller 1, 1 mi n Waelder, sd 2975 ft. Ferrell & Elam's J. F. Robinson 1, J. Livergood sur., fsh 1550 ft for stuck drill stem. Crown Pet. Co.'s Hattenback 1, 8 mi sw Sample, dr 2515 ft lime. Ft. Bend Oil Co.'s Hamm 1, 3 mi e Harwood, sd 3315 ft. Hoffman's Burrar 1, 8 mi ne Waelder, dr 675 ft gbo.

GUADALUPE COUNTY — Sun's M. L. Manford 1, 3 mi sw Luling, dr 2850 ft shale, top chalk 2687 ft. Simms & Penn's Manford 2, 3 mi sw Luling, dr 2564 ft lime. Carl Bros.' Powers 1, 2 mi n Kingsbury, abn 2210 ft. Sights et al's Behring 1, 5 mi e Seguin, dr 1840 ft shale.

MAVERICK COUNTY—Rycade's Chittim 3, 20 mi e Eagle Pass, dr lime 5575 ft, gas showing; Chittim 4, dr 5445 ft lime; Chittim 5, dr 300 ft; Sullivan 4, dr 5565 ft lime. The Texas Co.'s Bandera County Land 1, 15 mi e Eagle Pass, dr 2530 ft.

STARR COUNTY — The Texas Co.'s V. Guerra 4-A, Roma, dr 1715 ft.

WILSON COUNTY — Grayburg Oil Co.'s Tegler 1, 5 mi n Stockdale, dr 2717 ft shale. Acme Royalty Co.'s Webber 1, 2½ mi se Nixon, ru.

TEXAS GULF COAST

Company, Well and Location	Initial Production Bbls.	Depth
FAYETTE COUNTY—		
National Oil Co., Hunger 1, 8 mi sw La Grange	*	2630
Moore et al, Kerr 1, Muldoon	*	2485
JASPER COUNTY—		
Burnham et al, Orton 1, e Rockland	*	2520
JEFFERSON COUNTY—		
Westbury Oil Co., R. West 3, David Choate sur.	*	2700
WASHINGTON COUNTY—		
Fuchs et al, Ed Tonn 2, 14 mi sw Brenham	*	1090

AUSTIN COUNTY—O'Hara et al's Ward 1, wo, ½ mi w Peters, sd 2820 ft. Whittington et al's Lass 1, dr 1950 ft shale.

BRAZORIA COUNTY—Thos. Faust et al's Fee 6, 2 mi s Nash Dome, dr 1500 ft lime. Steele & Strickland's Lochridge 1, near Lochridge, dr 1100 ft.

CHAMBERS COUNTY — Pure Oil Co.'s Lost Lake 3, dr 1475 ft sand and lime; Mayes 1, ru to dd; Mayes 4, ru; Mayes 5, ru; Mayes 6, lcn; Mayes 7, dk; No. 8, dk. Chicago Oil Corp.'s Lawrence 1, 10 mi s Barbers Hill, sd 1185 ft.

COLORADO COUNTY — Merrett et al's Zverck 1, 2½ mi e Ellinger, sd 1000 ft. Rich Oil Corp.'s Von Rosenburg 2, 2½ mi w Alleyton,, sd 2825 ft.

FAYETTE COUNTY—Kelley et al's Burke 1, 2 mi nw Flatonia, sd 500 ft. Moore et al's Kerr 1, Muldoon, abn 2485 ft. National Oil Co.'s Hunger 1, 8 mi sw La Grange, abn 2630 ft. Muldoon Oil Co.'s Kimper 1, Muldoon, sd 225 ft.

FORT BEND COUNTY—Gulf's Trone 12,

Magnolia Pipe Line Runs Decline Slightly in August

DALLAS, Texas.—Crude runs made by Magnolia Pipe Line Company from fields in Oklahoma, Texas, Arkansas, Louisiana and Kansas averaged 94,806 barrels daily during August, or a decline of 547 barrels as compared to the average maintained in July. These figures do not include oil handled on a common carrier basis for other companies from the above states, or current production being sold by Magnolia Petroleum Company. The latter is credited with having an average production of about 95,000 barrels daily, including royalty oil interests, in the five states, and is now selling about as much oil daily as is being purchased from other producing units.

Magnolia Petroleum Company has in excess of 40,000,000 barrels of mixed grades of crude in storage in the above five states. Because of storage being virtually filled at many points, the company has taken little interest in the purchase of additional outside oil lately, resulting in the daily average runs of the Magnolia Pipe Line Company being held under the 100,000-barrel mark since April.

Crude stocks of Magnolia Petroleum Company in the Oklahoma-Kansas district were withdrawn during August at rate of 6192 barrels daily, while during July the company pulled on these stocks at rate of less than 200 barrels daily. At the close of August the company had 9,702,173 barrels of oil in storage in the Oklahoma-Kansas district. Oklahoma is the principal source of crude supply for the Magnolia Pipe Line Company, as a daily average of 51,626 barrels was maintained on oil runs during August, with Texas fields ranking second for a daily average of 34,437 barrels in August. Crude runs from the latter state gained slightly, while a slight loss was sustained in Oklahoma fields.

Tanker shipments of crude oil by Magnolia Petroleum Company during August aggregated 1,025,383 barrels, or an average of 33,077 barrels daily, from Beaumont docks. Water movement of refined oils amounted to 56,203,861 gallons during August, while fuel oil tanker loadings increased two and one-half million gallons over July, to a total of 6,534,325 gallons.

Total crude runs made by Magnolia Pipe Line Company, exclusive of common carrier business, from fields in Oklahoma, Kansas, Texas, Arkansas and Louisiana during July and August, 1929, follow:

Fields—	July	August
Wewoka-Cromwell	1,045,160	1,037,180
Healdton	216,731	213,264
Hewitt-Graham	153,295	151,057
Cushing	107,496	105,393
Seminole	55,293	51,179
Yale	42,216	42,323
Augusta (Kan.)	37,413	35,805
Total Oklahoma and Kansas	1,657,604	1,636,201
Luling	302,230	301,108
Mirando	175,249	176,908
Panhandle District	75,954	103,264
Electra	87,186	85,618
Crane County	53,986	69,287
Winkler County	78,074	66,199
Burkburnett	62,761	62,551
Howard Co. (Deep)	59,633	54,315
Lockhart-Lytton Springs	34,536	31,740
Mexia-Wortham	22,370	21,609
Archer County	21,225	20,485
Desdemona-Comanche County	16,845	16,355
Iatan-Howard Co.	18,206	15,941
Corsicana-Powell	12,082	12,176
Corsicana (Heavy)	9,183	9,124
Ranger-Olden	8,852	8,680
Stephens County	8,807	8,091
Petrolia-Clay County	2,356	2,072
Thrall-Williamson County	1,233	1,154
Panola County	2,138	877
Total, Texas	1,052,906	1,067,554
Smackover	71,453	65,495
Rainbow	44,955	41,054
El Dorado	5,942	7,774
East El Dorado	3,328	4,039
Total, Arkansas	125,678	118,362
Bull Bayou	36,956	40,421
Pine Island	28,850	26,860
Hackberry	25,221	24,207
Cotton Valley	24,318	21,542
Haynesville	4,408	3,832
Total, Louisiana	119,753	116,862
Total for five states	2,955,941	2,938,979

ABBREVIATIONS

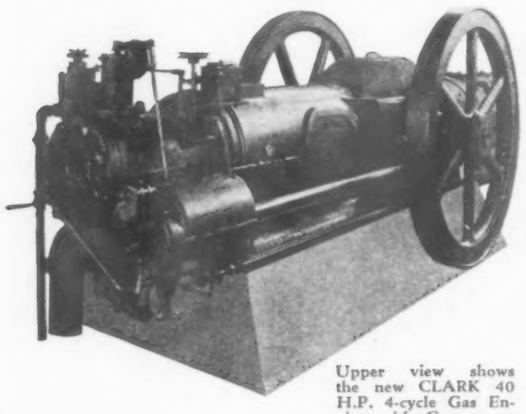
NOTE—The following is the explanation of abbreviations, signs, etc., used in completion and wildcat reports; *—dry hole, abandoned well; ‡—salt water; †—junked and abandoned; ¶—million feet of gas; abn—abandoned; bbls—barrels; b.s.—basic sediment; cas casing; co—cleaning out; dk—derrick; dr—drilling; fsh—fishing; ft—feet; in—inches; lcn—location; m—milling; n, s, e, w—north, south, east, west; r—reaming; sd—shut down; sdtr—sidetracking; sp—spudding; sr—straight reaming; std—standardizing; sw—salt water; td—total depth; ur—underreaming; wo—workover; wosr—waiting on standard rig.

AT THE EXPOSITION

SEE THIS

NEW!

CLARK 40h.p. Compressor OR Pumpinq Unit



Upper view shows the new CLARK 40 H.P. 4-cycle Gas Engine with Compressor End attached. Lower view shows the power end of the CLARK "40".

Meeting a real practical need of the industry, here is a CLARK 40 H.P. Gas Engine, which can be equipped either with a Pumping Clutch or with Compressor End attached to the same bed plate. Operators can thus have an economical and dependable unit which can be used as a compressor or pumping unit as desired. See this at the Exposition.

ALSO See the CLARK Senior Drilling Engine with Type G, Two-Speed, Roller Bearing Clutch—and the CLARK Direct Gas Engine Driven Generator Unit—in the Clark Bros. Company building on the Exposition grounds.

CLARK BROS. COMPANY, OLEAN, N. Y.

Export Office: 150 Broadway, New York City

Warehouses:	*Mid-Continent*	*California*
Tulsa, Okla., McCamey and Sweetwater, Texas; Artesia, N. M.	Sales Offices Tulsa and Fort Worth	Smith, Booth, Usher, Company, 228 S. Central Ave., Los Angeles

CLARK

Long Point, dr 5150 ft shale; Moore 19, Moore's Field, dr 5220 ft sand. Grayburg Oil Co.'s Ransom 1, s Richmond, dr 4005 ft shale.

HARRIS COUNTY — Humble's Simms-Smith 75, Goose Creek, dr 6275 ft, sticky shale; Siadous 1, Mykawa, dr 1975 ft gbo; Woodburn 1, 2 mi s Genoa, abn 5772 ft; Woodburn 2, lcn; Warren 6, Hockley, dr 3983 ft. Hammond et al's Brodt 1, s Sheeks, set 10-inch cas at 350 ft. York & Robertson's Garrett 1, 5 mi se Fauna, sd 1865 ft. Mrs. J. C. Baldwin's Kitzman 1, 2 mi n Cypress, trying to pull screen, depth 4055 ft. Rich et al's Highland Farms 1, Elena, dk.

JASPER COUNTY—Burnham et al's Orton 1, e Rockland, abn 2520 ft.

JEFFERSON COUNTY — River Oil Co.'s Ship Channel Ld. Co. 1, 2 mi se Beaumont, sdtr 750 ft, td 3100 ft. Deep Test Oil Corp.'s F. McFaddin 1, dr 4300 ft gbo. Gulf's Burrell 3, Fannett, dr 5200 ft shale and lime; Junker 1, Fannett, dr lime and shale at 3051 ft; Thomas 12, Fannett, dr 3930 ft shale and lime. Westbury Oil Co.'s R. West 3, David Choate sur., abn 2700 ft. Vacuum Oil Co.'s Broussard & Hebert 1, 9 mi se Fannett, dr 4643 ft water sand. Shell's Heisig 1, 2 mi n Hamshire, dr 7113 ft shale and lime. The Texas Co.-Houston Oil Co.'s Fitzhugh 1, Big Hill, dr 1775 ft sand. The Texas Co.'s Pipkin 2, Big Hill, dr 4239 ft water sand; Burrell 1, Fannett, dr 3859 ft gbo and lime. Rosedale Oil Co.'s Walker 1, Rosedale, dr 2100 ft gbo.

LIBERTY COUNTY—Humble's Sterling 6, Moss Bluff, dr 2744 ft gbo. Pure's Liberty Investment Co. 1, Moss Bluff, dr 5500 ft gbo and shale. Gulf's Boyt 2, Hankamer, set two joints screen at 2925 ft, came in flowing 500 bbls daily, shut in for storage; Weiser 1, Hankamer, dr 2150 ft. Harrison Oil Co.'s Quintette 4, N. Dayton, 4120 ft, completed as gasser. Cranfill-Reynolds Company's Esperson 3, Esperson dome, dr 2900 ft lime; Vadjak 1, Esperson dome, coring sand at 3330 ft.

MONTGOMERY COUNTY — Kelly & Baker's Juergus 1, 3 mi e Conroe, dr gbo 2975 ft.

ORANGE COUNTY—The Texas Co.'s M. H. Stark 1, Pt. Neches, set casing 3173 ft; Polk 1, Pt. Neches, set 16-inch cas at 95 ft. Gulf's J. H. Starks 1, Pt. Neches, dr 1065 ft; M. H. Starks 1, Pt. Neches, lcn. Galperin et al's Mansfield 1, 1½ mi ne Mansfield ferry, ru.

VICTORIA COUNTY—Humble's Welder 1, 3 mi se Nursery, dr 5200 ft shale.

WASHINGTON COUNTY—Fuchs et al's Tonn 2, 14 mi sw Brenham, abn 1090 ft. Brains et al's L. S. Smith 1, 4½ mi ne Gay Hill, dr 1400 ft shale. W. Gahee's Davis 1, sd 50 ft. Washington County Oil Co.'s F. C. Schwartz 1, lcn. A. W. Kollett's Harmel 1, n Brenham, ru.

WHARTON COUNTY — Hearte Oil Co.'s Brown 1, 5 mi s El Campo, sd 2810 ft.

ABBREVIATIONS

NOTE—The following is the explanation of abbreviations, signs, etc., used in completion and wildcat reports; *—dry hole, abandoned well; ‡—salt water; †—junked and abandoned; ¶—million feet of gas; abn—abandoned; bbls—barrels; b.s.—basic sediment; cas casing; co—cleaning out; dk—derrick; dr—drilling; fsh—fishing; ft—feet; in—inches; lcn—location; m—milling; n, s, e, w—north, south, east, west; r—reaming; sd—shut down; sdtr—sidetracking; sp—spudding; sr—straight reaming; std—standardizing; sw—salt water; td—total depth; ur—underreaming; wo—workover; wosr—waiting on standard rig.

SOUTH LOUISIANA

ACADIA PARISH — Yount-Lee Oil Co.'s Houssiere-Latrielle 7, Jennings, dr 6450 ft shale and lime. Crowley Oil & Mineral Co. 4, Jennings, dr 7810 ft shale.

ASCENSION PARISH—Gulf's United Lds. Co. 16, Sorrento, lcn. Triumph Oil Co.'s J. D. Lacey 2, 3 mi se Sorrento, sd 3325 ft.

CALCASIEU PARISH — J. O. Davis' Mimms 1, Lake Charles, sd 5600 ft. Shell's Miller 1, Lockport, dr 7138 ft shale. Wilfred Lahay's James 2, 3½ mi s Starks dome, sd 3400 ft.

CAMERON PARISH — The Texas Co.'s Calcasieu Lake A-4, S. Calcasieu Lake dome, dr 1440 ft gbo. Pure's Yount-Lee 7, Sweet Lake, fsh 6380 ft. Shell's Watkins 12, Black Bayou, dr 4560 ft sand; Watkins 13, Black Bayou, dr 910 ft sticky shale; A. Marceaux 1, Mallard Bay, spudded. Yount-Lee Oil Co.'s W. H. Stark 1, Johnsons Bayou, dr 2460 ft shale.

IBERIA PARISH—The Texas Co.'s Vermilion Bay A-4, ru. Jefferson Lake Oil Co.'s Lake Peigneur 3, lcn.

IBERVILLE PARISH—Shell's Wilbert 3, White Castle, fsh 5995 ft. Standard's Schwing 2, Bayou Blue, dr sand, oil show, 3583 ft; Schwing 3, Bayou Blue, piling completed for foundations.

JEFFERSON DAVIS PARISH—Vacuum's DeVilbiss 2, Roanoke, dr 5046 ft water sand. J. E. Carradine's Walshe 4, Welch, dr 1225 ft shale.

LA FOURCHE PARISH—Texas Gulf Sulphur Co.'s Stark 14-A, Thibodaux, dr 1275 ft; Stark 24, Thibodaux, dr 1725 ft rock.

PLAQUEMINES PARISH—Gulf's Morris & Rose 1, Spanish Pass, dk. The Texas Co.'s Garden Island Bay 3, lcn. Humble's Lake Washington 1, Lake Grande Ecaille dome, dr 3365 ft gbo.

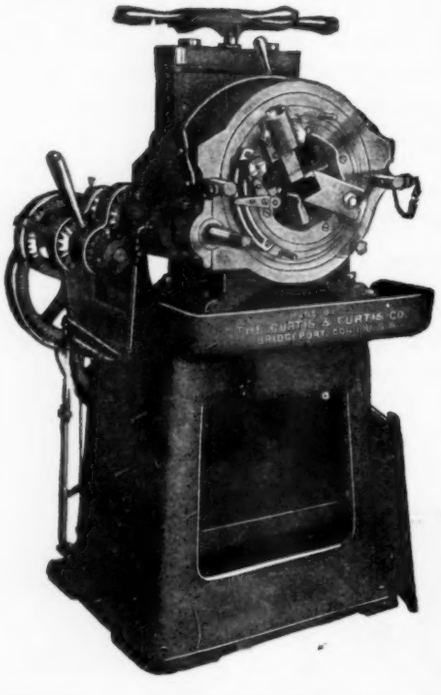
ST. LANDRY PARISH—Gulf's Gaudet 2, Port Barre, lcn.

ST. MARTIN PARISH — Ohio Oil Co.'s Martin et al 4, Hager dome, lcn. The Texas Co.'s St. Martin Ld. Co. Fee 1, Hagar dome, dr 4675 ft shale; St. Martin Ld. Co. Fee 2, Hager dome, dr 2615 ft sand. Freeport Sulphur Co.'s Belle Isle 4, dr 400 ft lime rock.

TANGIPOHAO PARISH—Joan Dev. Co.'s Lake Superior Piling Co. 1, sd 3100 ft. Completion Oil Co.'s Kent 1, 36-1s-6e, sd 2710 ft.

TERREBONNE PARISH—The Texas Co.'s

When Threading Pipe In The Field....
Have a Man **CARRY A CURTIS**
Threading Machine
TO THE JOB



Thread your pipe right on the spot—Curtis Machines are portable and easily carried to the job—they save cartage and eliminate your having to haul heavy pipe to the machine.

CURTIS MACHINES SAVE TIME
CURTIS MACHINES COST LESS
CURTIS MACHINES TAKE LESS POWER
CURTIS MACHINES TAKE LESS FLOOR SPACE

Curtis
AND CURTIS
315 Garden St., Bridgeport, Conn.

WRITE FOR FULL DETAILS

See the GARDNER-DENVER MUD PUMPS

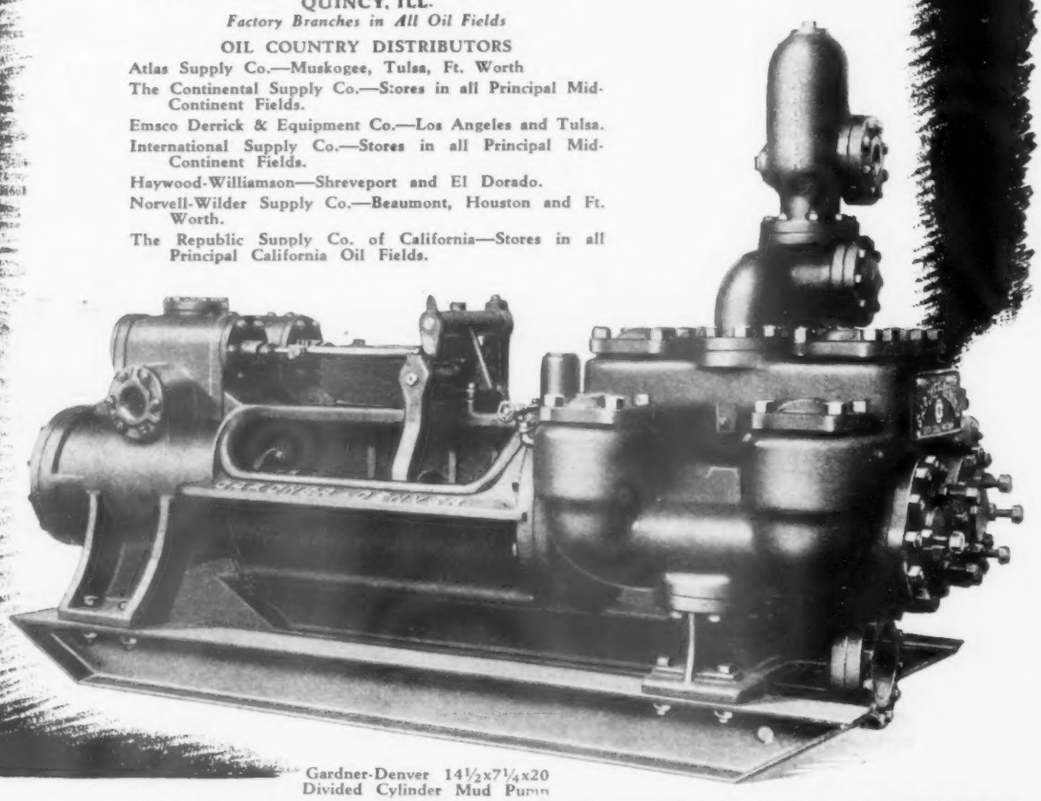
- on the CONTINENTAL - EMSCO well at the EXPOSITION .....

FOR every oil industry pumping requirement, there is a GARDNER-DENVER pump of the correct design and construction for dependable, efficient and economical service. Send us your requirements for descriptive bulletins.

GARDNER-DENVER COMPANY
QUINCY, ILL.
Factory Branches in All Oil Fields

OIL COUNTRY DISTRIBUTORS

Atlas Supply Co.—Muskogee, Tulsa, Ft. Worth
The Continental Supply Co.—Stores in all Principal Mid-Continent Fields.
Emsco Derrick & Equipment Co.—Los Angeles and Tulsa.
International Supply Co.—Stores in all Principal Mid-Continent Fields.
Haywood-Williamson—Shreveport and El Dorado.
Norvell-Wilder Supply Co.—Beaumont, Houston and Ft. Worth.
The Republic Supply Co. of California—Stores in all Principal California Oil Fields.



Gardner-Denver 14½x7¼x20
Divided Cylinder Mud Pump

GARDNER-DENVER

Lake Pelto B-2, lcn; Lake Pelto B-3, driving piling; Four Isle Bayou 2, dr 1850 ft gbo; Bay Junop 1, dr 3300 ft gbo; Bay St. Elaine 2, gas well at 790 ft; Bay St. Elaine 3, waiting on rig; Lake Barre A-2, completed for 1600 bbls at 3849 ft; Lake Barre 3, lcn; Caillou Island 2, driving piling; Louisiana Ld. and Explo. Co. B-1, dr 1500 ft shale and lime; No. 2-B, lcn.

WEST TEXAS

Company, Well and Location		Initial Production Bbls.	Depth
FISHER COUNTY—			
Culbertson Bros. et al, Griffin 1....		*	3505
Roeser-Pendleton & Landreth, Johnson 1		*	3282
GLASSCOCK COUNTY—			
Texas State Oil Co., Edwards 1 ..		†	2461
PECOS COUNTY—			
C. Williams et al, Sanford 1		*	1526
Gibson-Johnson et al, Grace 1		†	1793
PRESIDIO COUNTY—			
C. E. Miller-Delmar et al, Tootle 1		*	4730
RUNNELS COUNTY—			
Herbert Oil Co. et al, Currie 1....		*	3005

ANDREWS COUNTY—Deep Rock Oil Co. et al's Ogden 1, ur cas 1020 ft.

BORDEN COUNTY—Louisiana O. & R. Corp's Miller 1, top salt 1070 ft, dr 1310 ft. W. A. Moncrief & Humble's Munger 1, top salt 1090 ft, dr 1365 ft. Teas-Wheeler et al's Long 1, elev. 2516 ft, top salt 1030 ft, sd 2633 ft.

BREWSTER COUNTY—Ed. W. Bateman & Co.'s Neville 1-A, sd for cas 2200 ft. Brewster Oil Co.'s Fee 1, fsh 1930 ft. E. L. Chapman et al's Skinner 2, dr 725 ft. J. P. Johnson & Bert Weekly's Jackson-Harmon 1, elev. 3972 ft, sd showing trace oil with water 3970-88 ft.

COCHRAN COUNTY—Continental Oil Co.'s Slaughter 1-A, elev. 3793 ft, pb from 5000 ft to 4900 ft and testing 1400 ft oil in hole. R. A. Westbrook et al's Slaughter 1, dk.

COKE COUNTY—Mid-Kansas O. & G. Co.'s Lackey 1, elev. 2152 ft, dr up baler 4085 ft.

CRANE COUNTY—Gulf's Waddell 8, elev. 2724 ft, top salt 1322 ft, top brown lime 3170 ft, dr 3205 ft.

CROCKETT COUNTY — California Co.'s Powell 3, elev. 2725 ft, top salt 1080 ft, dr 1875 ft. A. R. Eppenauer & West Texas Pet. Corp.'s Noelke 1, elev. 2545 ft, top salt 720 ft, sd 1125 ft. Lewis & Daniels' Pecos River bed 1, elev. 1967 ft, top lime 1002 ft, sd hfw 1326-35 ft. W. A. Moncrief's Todd 1, (Sec. 29) dr 965 ft. Taylor-Link Oil Co.'s Powell 3, elev. 2722 ft, top salt 1040 ft, dr 2580 ft.

CULBERSON COUNTY — Grisham-Hunter Corp.'s Fee 1, spudding. Hickey et al's Finley 1, elev. 3916 ft, sd 2275 ft. Scott & Dittman's Miller 1, elev 4059 ft, dr 3175 ft. West Texas Oil & Explo. Co.'s McGregor 1, sd 825 ft.

ECTOR COUNTY—Penn Oil Co.-Humble & Atlantic's Kloh 1, elev. 2925 ft, top salt 1230 ft, dr 3605 ft.

EL PASO COUNTY—Lane-Tex Oil Co.'s Malone 1, dr 1175 ft.

FISHER COUNTY — Cranfill-Reynolds & Sun Oil Co.'s Barrett 1, dr 375 ft; Texas Cement Fee 1, fsh 1625 ft. Landreth Prod. Corp.'s Cooper 2, spudding. Magnolia Pet. Co.'s Alice Lee 1, elev 1827 ft, dr hfw 3230 ft. Mid-Kansas & Phillips Pet. Co.'s Stephenson 1-A, dr 2960 ft. The Texas Co.'s Stephenson 1-B, elev 1965 ft, dr 2865 ft. Henry Riley et al's Veatch 1, ur 2690 ft.

GAINES COUNTY—Louisiana O&R Corp. & Cranfill-Reynolds Co.'s Ralph 1, lcn.

GARZA COUNTY — H. C. Cate et al's Stoker 1, lcn. Paul Steed et al's Boren 1, elev 2350 ft, top salt 450 ft, top lime 1847 ft, set cas 2265 ft. Thompson et al's Tuffing 1, trace oil and gas 1975-2100 ft, dr 2125 ft.

GLASSCOCK COUNTY — California Co.'s Currie 3, dr 1680 ft; Jones 1, dk. Daniels et al's Meek 1, elev 2792 ft, sd 1050 ft. Fuhrman Pet. Corp.'s McDowell 1, spudding. Glasscock Bros. et al's Edwards 1, lcn. Kirby Pet. Co. et al's Baker 1, dr 1590 ft. Landreth & Tidal Oil Co.'s Houston 1, dr 635 ft. Lion O&R Co.'s Coffee 2, rig. Mid-West Explo. Co.'s Edwards 1, elev 2550 ft, dr hfw 3040 ft. Schermerhorn Oil Co.'s Phillips 2, rig. Sun Oil Co.'s Phillips 2, elev 2617 ft, dr 1655 ft; Phillips 3, rig. Simms Oil Co.'s Coffee 1, rig. Shell Pet. Corp.'s Coffee 1, rig. E. L. Smith Oil Co.'s Coffee 1, dr 865 ft; Coffee 2, rig.

TOM GREEN COUNTY — Fitzgerald & Smith's Bennett 1, elev 1792 ft, dr 2395 ft.

HOCKLEY COUNTY — World Oil Co.'s Ellwood 1, elev 3363 ft, top salt 2157 ft, set 6-inch cas 3224 ft.

HOWARD COUNTY—Merriwether Oil Co.'s Eva Smith 1, set cas 800 ft.

HUDSPETH COUNTY — The California Co.'s University 1, elev 5833 ft, dr 2100 ft. Geo. E. Richardson et al's Thaxton 1, spudded and sd.

IRION COUNTY—Banner Oil Co.'s Nutt 2, lcn. J. B. Crawford et al's Nutt 1, dr 1080 ft. Brown & Fox's Tankersley 2, lcn. Carl G. Cromwell et al's Nutt 1, making 7 bailers oil per hour 1398-1400 and 1430-35 ft. Fox & Miller's Tankersley 1, dr 1100 ft. Fuhrman Pet. Corp.'s Nutt 1, ur 1090 ft. Kingwood Oil Co. et al's J. D. Sugg 1, elev 2334 ft, dr out cement plug, td 7667 ft. Simms Oil Co.'s Carter 1, dr 275 ft. J. A. Starkweather et al's Lindley 1, spudding. P. H. Williams et al's Ashe 1, co 3535 ft.

JONES COUNTY—Adsit et al's Swenson 1-A, ur 1765 ft. Mid-Tex O&G Co.'s King 1, sd 1280 ft. Sedgwick O&G Co.'s Morrison 1, sd 2165 ft. F. E. Shaheen et al's King 1, dr 1560 ft.

KENT COUNTY—Geo. W. White & R. F. Smith's Pursley 1, sd 250 ft.

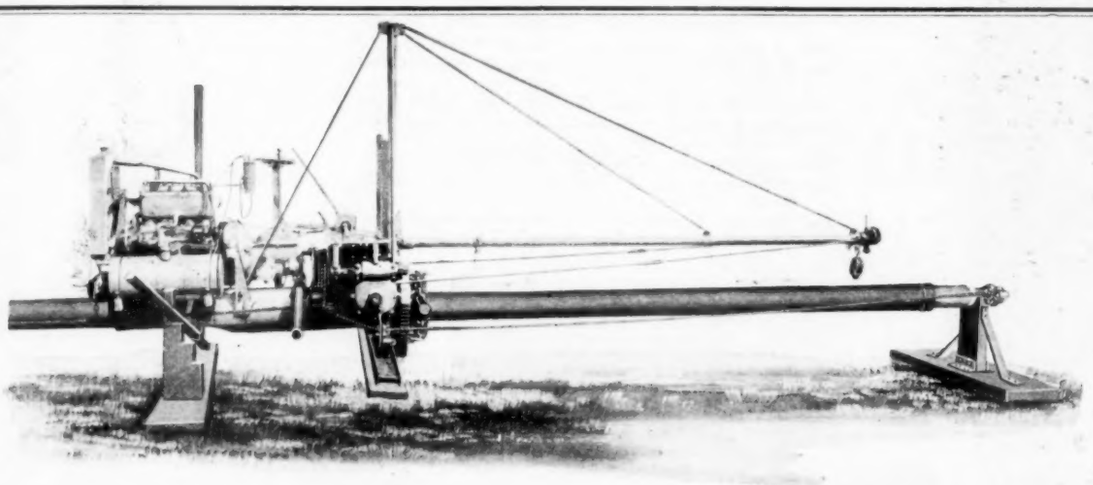
LOVING COUNTY — Humble O&R Co.'s Kloh 1, sd 885 ft. Independent O&G Co.'s Wheat 1, lcn. Lockhart & Co.'s Allen 3, lcn. Hazell 1, elev 2705 ft, co 3985 ft; Hubbard 3, elev 2691 ft, top salt 775 ft, sd 1955 ft; Hubbard 4, top salt 710 ft, dr 1145 ft.

LYNN COUNTY—Hart Oil Corp. & Geo. McCamey's Edwards 1, elev 3128 ft, top salt 2140 ft, ur with hfw 4653 ft.

MENARD COUNTY—Barnett et al's Callan 2, sd 740 ft.

MITCHELL COUNTY — Teas-Wheeler et al's Radford 1, elev 2223 ft, top salt 667 ft, top lime 1365 ft, cem cas 4225 ft.

NOLAN COUNTY—Gibson-Johnson's S. P.



Cut Pipe Line Costs!

Laying oil pipe lines can be done in a fraction of time taken by manual labor and with a saving of 75% of the labor cost if you use the

CALIFORNIA PIPE LINE MACHINE

This machine travels on the pipe line. It is simple, sturdy and dependable. Will lay a mile a day.

Above illustration shows one of our larger machines capable of laying 6 and 8 inch pipe. We also build machines that will lay 4, 5, 6, 8, 10 and 12 inch pipe.

Machines for sale or lease

California Pipe Line Machine Company

J. J. MAHONEY, *President* KANSAS CITY, MO.

CALIFORNIA PIPE LINE MACHINES
are used by such companies as:

Gulf Pipe Line Co.
Humble Pipe Line Co.
Oklahoma Pipe Line Co.
Standard Pipe Line Co., La.
Texas Pipe Line Co.
Western Pipe Line Co.
Sinclair Pipe Line Co.
Producers & Refiners Pipe Line Co.
Andian National Corp.
Crusader Pipe Line Co.
Associated Pipe Line Co.
General Pipe Line Co.
Standard Pipe Line Co., California
Marland Pipe Line Co.
Champlin Oil Co.
Magnolia Pipe Line Co.
Pure Oil Co.
Gypsy Oil Pipe Line Co.
Asiatic Petroleum Co.
Ozark Pipe Line Co.
Roxana Pipe Line Co.
Empire Pipe Line Co.
Pierce Oil Co.
Shell Oil Co.
Oklahoma Contracting Co.
Geo. Greeman, Pipe Line Contractor
Williams Bros., Pipe Line Contractors
W. R. Morris
U. S. Morris
Connor & Son Construction Co.
Ford, Bacon & Davis
E. A. Macpherson
Hope Engineering Co.
Sheehan Pipe Line Construction Co.
Standard Oil of N. J.

THE ECONOMY PUMP COMPANY
ECONOMY
BLUE DEVIL
TULSA, OKLA.

THE ECONOMY PUMP COMPANY
ECONOMY
RED TOP
TULSA, OKLA.

TRAVELING VALVE

full floating

an exclusive feature of the Economy Pump

Blue DEVIL

Red TOP

A full floating valve that overcomes rod trouble—*no unscrewing, no breakage.* An exclusive feature of Economy pumps. Connecting to valve stem by means of a universal connection giving a flexible connection that allows cups and repacks to wear uniform because the valve finds its own center in the tube and does not have the forced wear on any particular side. Doing away with the unnatural quick wear on cups and working barrel tube.

. . . Just another feature of the Economy Pump that is due to specializing by a Company that has spent years to perfect the Pump it now guarantees perfect. The one pump economical to operate — all workers can re-condition perfectly with standard re-conditioning equipment.

Made in two styles, the BLUE DEVIL with 4 or 8 cups traveling valve, and the RED TOP with perfection Pack Valve. Made in all lengths and for 2" and 2½" tubing. Economy Pumps are made one foot shorter than standard working barrels, 4 ft., 5 ft., 6 ft., and 7 ft.

The ECONOMY Pump is the one pump with the one price, regardless of length, the 2" BLUE DEVIL with 4 cup valve selling for $32.00; with 8 cup valve $36.00.

The RED TOP with Perfection pack valve $36.00
ALL PUMPS SHIPPED PREPAID.

To those that have not used Economy Pumps we offer you this plan: send us an order for a RED TOP and we will give you a BLUE DEVIL, run them both, decide yourself, then your orders will come for more, either thru your Supply House or direct.

ALL THAT THE NAME SAYS

Economy Pump Company

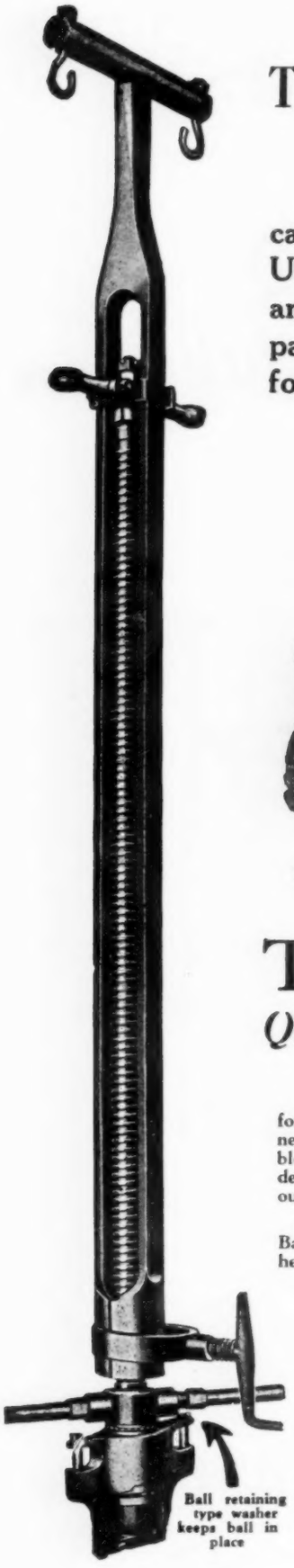
TULSA, OKLAHOMA

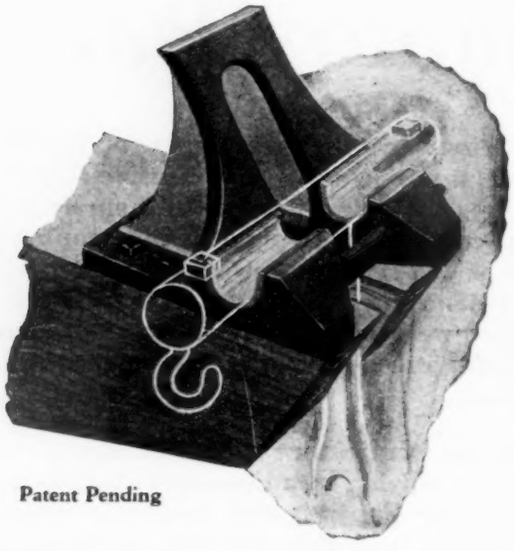
BURNS—*A Name That Has Always Stood for Highest Quality*

BURNS

Tubular Temper Screw

THE standard in cable tool drilling in every field. Used on the world's deepest wells and by the world's largest companies, in every land where oil is found.





Patent Pending

This same BURNS

Quality is in this new product

THE BURNS BEAM BEARING

for Temper Screws, saves the beam and makes unnecessary the practice of *half-soling*, or nailing a block of hardwood to the beam head. A *Safety first* device as it is impossible for Temper Screw to jump out.

No working parts, nothing to get out of order. Babbitt bearings prevent wear on the temper screw head. For sale by your Supply Store, write for prices.

BURNS *Tool Company*

OKMULGEE - OKLAHOMA

Bond 1, dr 615 ft. Phillips Pet. Co.'s Plunkett 1, elev 2423 ft, dr 4015 ft.

PECOS COUNTY — California Co.'s University-Landrum 1, top salt 794 ft, dr 1145 ft. Continental Oil Co.'s University 1-A, elev 2574 ft, top salt 790 ft, swab 75 bbls oil 12 hours 988-96 ft. Corzelius Bros. et al's Cordova Union 1, lcn. Cosden Oil Co.'s McDonald 1, machine. Dittman Drlg. Co. et al's Cunningham 1, lcn. Dixie Oil Co.'s McKenzie 1, lcn. Cowboy Evans et al's Pecos Valley 1, elev 2445 ft, top salt 1215 ft, bailed 10 bbls oil 1556-91 ft. Gibson-Johnson's Grace 1-A, skid rig, dr 665 ft. Gulf Prod. Co.'s University-Hale 1-A, dr 995 ft. Henshaw Oil Corp. (Angelo Pet., Inc.'s) University 1, dr 580 ft; McDonald 1, dr 335 ft. Independent O&G Co. & Rowan-Tong's McDonald 2, dr 135 ft; McDonald 3, dr 565 ft. Jayhawk Pet. Co.'s Price 1, sd 195 ft. J. L. Kennedy et al's M. R. Kennedy 1, dr 325 ft. Landreth Prod. Corp.'s McDonald 1-A, dr 1145 ft; McDonald 2-A, spudding; McDonald 1-B, lcn; University 2-A, dr 720 ft; University 3-A, machine; University 1-C, dr 285 ft; University 2-C, dr 525 ft; University 1-D, dr 440 ft; University 1-G, machine; University 2-G, lcn. Landreth & World Oil Co.'s University 2-B, elev 2545 ft, top salt 850 ft, show gas, dr 950 ft; University 3-B, dr 800 ft; University 4-B, dr 580 ft; University 5-B, spudding. Madza Oil Corp.'s Cordova 1, lcn. Merrick & J. E. Bristow's Neville 1, rig. Milham Corp.'s McDonald 1, dr 220 ft. W. A. Moncrief's University 1, (Sec. 27) elev 2694 ft, top salt 1090 ft, top lime 1775 ft, dr hfw 1964 ft; University 2, (Sec. 13), machine; Clarkson 1, (Sec. 84) dr 520 ft. R. E. Moore et al's Arnold 1, sd 1218 ft. Geo. B. Morgan et al's Tippett 1, spudded and sd; Toberg 2, testing 300 ft oil in hole 357-417 ft. J. D. O'Mara et al's Bennett 1, fsh 875 ft; Streety 1, sd 825 ft. S. B. Owens & Cranfill-Reynolds Co.'s Masterson 1, spudded and sd. Pecos Crude Oil Pur. Co.'s Pecos Valley 3, elev 2449 ft, top salt 1115 ft, fsh for cas with oil in hole after shot, td 1952 ft. O. J. Perren et al's L. Peterson 1, elev 2439 ft, top salt 990 ft, dr 2270 ft. Phillips Pet. Co.'s Courtney-Pryor 1, elev 2951 ft, dr 4035 ft; Courtney-Pryor 2, dr 155 ft. Red Bank Oil Co.'s Neville 1, rig. M. M. Rowan et al's Sherbino 1, elev 2884 ft; top salt 975 ft, dr 2065 ft; University 1, (Sec. 25), elev 2764 ft, top salt 820 ft, top lime 1785 ft, dr and flow water 1965 ft. Schumaker et al's Williams 1, elev 2980 ft, sd 1665 ft. Shell Pet. Corp.'s University 2-C, dr 580 ft; University 3-C, and 4-C, spudding. B. J. Spikes et al's Brown 1, elev 2387 ft, sd hfw 2359 ft. Sides & Cloyd's (was Diamond Pet. Co.'s) Blackstone-Slaughter 2, lcn. Sun Oil Co.'s University 2, elev 2624 ft, top salt 860 ft,top lime 1530 ft, show oil and gas 1600-20 ft; University-Carlson 1, elev 2686 ft, top salt 1070 ft, ur 1140 ft; University-Toler 1, elev 2625 ft, dr 705 ft. Taylor-Link Oil Co.'s University 4, elev 2529 ft, top salt 850 ft, dr 1280 ft; University 5, dr 180 ft; University 6, dr 310 ft; University 7, machine. The Texas Co.'s McDonald 1, elev 2466 ft, dr 595 ft. Texas Co. & Phillips Pet. Co.'s Campbell 1, elev 2441 ft, top salt 1010 ft, set 6-inch cas 2110 ft. Tidal Oil Co.'s McDonald 1, elev 2479 ft, made two million ft gas 1365 ft, dr hfw 1430 ft; McDonald 2, dr 745 ft. Powers-McKanna, Inc., University 1, Sec. 14, elev 2715 ft, top salt 820 ft, top lime 1650 ft, dr 1730 ft. Transcontinental's University 1, elev 2552 ft, dr sand-lime 4522 ft. Trees Oil Co.'s Trees 2, dr 1725 ft; Trees 3, lcn. R. D. Webb et al's Fee 2, sd 875 ft. World Oil Co.'s University 1, (Sec. 31), elev 2508 ft, top salt 850 ft, sd making oil and water 1540-46 ft. F. P. Zoch et al's Cordova Union 1, lcn.

REAGAN COUNTY—Big Lake Oil Co.'s University 131, dr lime 8307 ft; University 151, dr shale and lime shells 7250 ft; University 1-C, dr 5970 ft; University 2-C, dr out cement plug 5475 ft. Henshaw-Thomas & Brann's Hughes 1, lcn. Skelly Oil Co. & Utah Southern's University 4, elev 2880 ft, top salt 1300 ft, dr 2625 ft.

REEVES COUNTY—Hanford et al's Williams 1, spudded and sd. Slack & Fink's Brooks-Huling 1, sd 500 ft. Southern Crude Oil Pur. Co.'s Kloh 1-A, elev 2784 ft, top salt 2000 ft, dr 3800 ft. D. R. Thompson et al's Eddins 1, dr by cas, td 5658 ft. Lee O. White et al's Mrs. Hershenson 1, elev 3244 ft, top salt 2670 ft, sd for cas with hfw 3235-48 ft.

RUNNELS COUNTY—Gibson & Johnson's L. P. Wood 1, dr 155 ft.

SCHLEICHER COUNTY—J. F. O'Harraw

CRANFILL-REYNOLDS COMPANY

A Consolidation of

CRANFILL & REYNOLDS, INC.
CENTRAL TEXAS REFINING COMPANY
CODY PETROLEUM COMPANY
PETROLEUM PIPE LINE COMPANY

And the Moody-Seagraves Properties in Liberty County, Texas

General Offices

DALLAS, TEXAS

This Construction Saves You Trouble and Expense

Take a look at the picture of "V" Pilot Packing, above. Note the face of each ring—a solid "V"-shaped bar made of anti-friction metal. The bar is slotted for flexibility. And the slots are staggered so that they prevent leakage and hold lubrication.

Observe also that the metal face is backed up by resilient asbestos. This material compensates for the vibration of the rod, so that you get a perfect seal with the least friction.

This construction, unique and original with "V" Pilot Packing, provides "The Seal of Quality." That's why "V" Pilot is rapidly gaining the preference of production men.

Even if your present packing service is considered satisfactory, you can save yourself trouble and expense with "V" Pilot Packing, as many other field men have done. Try "V" Pilot on your Air and Gas Compressors in lift service, on Derrick engines, Slush Pumps (both steam and mud ends), Polish Rods, Gas Pumping Engines (to seal oil between crankcase and compression chamber), and Pipe Line Pumps. Write for complete data.

DISTRIBUTORS

BEAUMONT, TEXAS
Norvell-Wilder Hardware Co.

BUFFALO, NEW YORK
Buffalo Mill Supply Co.

CHICAGO, ILLINOIS
O. C. Keckley Company

DENVER, COLORADO
The Mine & Smelter Supply Company

FORT WORTH, TEXAS
Norvell-Wilder Hardware Co.

HOUSTON, TEXAS
Texas Rubber Specialty Co.

LOUISVILLE, KY.
Graft-Pelle Co.

PITTSBURGH, PA.
Argo Asbestos & Rubber Co.

ST. LOUIS, MISSOURI
J. P. Bushnell Packing & Supply Company

SHREVEPORT, LA.
Norvell-Wilder Hardware Co.

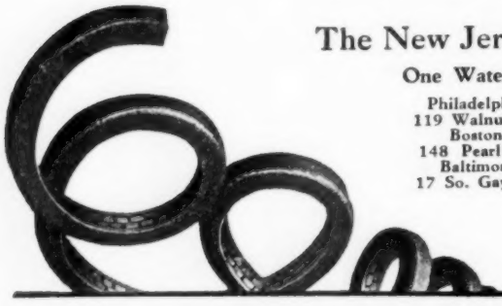
TOLEDO, OHIO
Hardy & Dischinger

TULSA, OKLAHOMA
Mid-Continent Sales Service Company

The New Jersey Asbestos Company

One Water Street, New York, N. Y.

Philadelphia
119 Walnut St.
Boston
148 Pearl St.
Baltimore
17 So. Gay St.
Norfolk
111 E. Main St.
San Francisco
37 Spear St.
Wilmington, Cal.
209 Avalon Blvd.



"V" PILOT PACKING

et al's Fee 1, sd 950 ft. McKavitt Oil Co.'s Tisdale 1, sd 3500 ft. Phillips Pet. Co.'s J. A. Whitten 1, elev 2333 ft, dr 5355 ft. Geo. T. Wilson et al's Page 1, rig.

SCURRY COUNTY—J. G. Armand & Camp Springs O&R Co.'s Quinn 1-A, dr 1115 ft. Byrd & Harmon's Murphy 1, dr 530 ft. Cottingham & Briscoe's Truss 1, elev 2664 ft, top salt 1059 ft, top lime 2175 ft, fsh 2190 ft. R. B. Pender et al's Davis 1, elev 2208 ft, top salt 445 ft, set 6-inch cas 3805 ft. Texas-Canadian Oil Co.'s Mooar 1, lcn.

STERLING COUNTY—S. B. Owen, Inc., et al's Tweedle 1, lcn.

SUTTON COUNTY — Independent O&G Co.'s Wilson 1, lcn. Independent & Sun Oil Co.'s Allison 1, spudded and sd. Phillips Pet. Co.'s Holman 1, elev 2277 ft, top lime 2317 ft, dr by 4 strings tools, td 6633 ft. L. G. Priest et al's Alliison 1, elev 2238 ft, bailing oil and some water daily, dr 3900 ft.

TAYLOR COUNTY — Condor Pet. Co.'s Brookerson 1, dr 2040 ft. Dunigan Bros. & Shell Pet. Corp.'s Davidson-French 1, elev 1867 ft, dr 2180 ft. J. B. Jameson et al's Webb 1, elev 1905 ft, changing contractors, td 4958 ft.

TERRELL COUNTY—Big Bend Oil Corp.'s Bassett 1, elev 2396 ft, sd for rotary 1150 ft. Keck-Pecos Oil Trust's Hamilton 1, elev 1733 ft, sd 2750 ft. Mrs. J. B. McPhee et al's Sam Belt 1, sd 800 ft. Milham Corp.'s Bassett 1, elev 2270 ft, sd 5480 ft.

UPTON COUNTY—Prairie O&G Co.'s McQuatters 1, elev 2658 ft, top salt 1415 ft, top gray lime 4000 ft, dr 4020 ft.

VAL VERDE COUNTY—Dyar Bros. et al's Wilson 1, elev 2115 ft, cem crevice 3594 ft. Phantom Oil Co.'s J. F. Ingram 1, spudded and sd. Valvert Oil Corp.'s Bassett 1-A, elev 2069 ft sd 4009 ft.

WARD COUNTY—Alpine Oil & Dev. Co.'s Boogher 1, elev 2443 ft, top salt 760 ft, dr 2050 ft. Continental Oil Co.'s Sealy 1-A, dr with hole full water and oil 3325 ft. C. C. Dorr et al, Costley 1, spudded and sd. Cranfill-Reynolds Co.'s Williams-Robeson 1, elev 2515 ft, top salt 755 ft, dr 2000 ft. Gulf Prod. Co.'s Hutchings 2, elev 2655 ft, top salt 1240 ft, top lime 2250 ft, flow 172 bbls oil with sulphur water at 3218-27 ft; O'Brien 6, elev 2659 ft, top salt 1068 ft, top lime 2304 ft, coring oil pay 2897 ft; Wristen 3, elev 2511 ft, top salt 748 ft, dr 2295 ft. L. C. Harrison Oil Co.'s Wristen 1, spudded and sd. J-H-L Oil Co.'s Hayzlett 3, rig. Penn Oil Co. & Atlantic's J. B. Bennett 1, elev 2581 ft, top lime 2175 ft, swab 60 bbls oil broken pay 2358-2610 ft. Shell Pet. Corp.'s Sloan-Owen 1, top salt 775 ft, cem cas 782 ft. Shipley Oil Corp.'s Lee Monroe 1, sd 520 ft; Hayzlett 3, rig. Tex-Oil Prod. Co.'s Redman 1-A, sd 935 ft.

WINKLER COUNTY—V. T. Bolin & Co. et al's Brown et al 2, top lime 2440 ft, dr 2575 ft. Liner Drlg. Co. et al's Campbell 1, elev 2884 ft, top salt 1155 ft, sd 2240 ft. Shell & Llano Oil Co.'s Scarborough 7, pb from sulphur water 3371 to 3356 ft and flowing 85 bbls clean oil.

MISSISSIPPI

ALCORN COUNTY—Alcorn Pet. Co.'s Matthews 1, 14-2-7, fsh in sandy shaley limestone, td 2700 ft.

CHICKASAW COUNTY—Hightower & Golson's Fleming 1, 20-13-13, trying shut off quicksand 1240 ft.

CLAIBORNE COUNTY—Ben White's Old Hen 1, 26-10-4, fsh drill pipe 1873 ft.

HARRISON COUNTY (Gulfport Dist.)—Dalton Oil Co.'s Lopez 1, 15-7-10w, lcn.

HINDS COUNTY (Jackson Dist.) — Mrs. Ella Rawls Reeder's State Land 1, 25-6-1, arr resume dr and arr set 6-in cas, td 2895 ft. Hennessey et al's Riverside 1, 23-16-5, sd flowing fresh water, td 1150 ft. Southern Christian Institute's Fee 1, 29-6-4, sd waiting for 5-3/16-in cas, td 1163 ft.

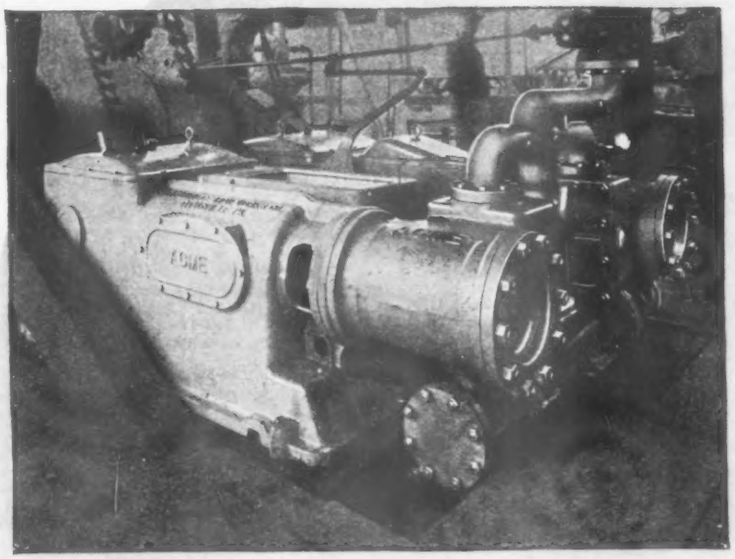
HUMPHRIES COUNTY—Steel et al's Love 1, 30-14-3, sd 60 ft.

LAFAYETTE COUNTY—F. E. West et al's May 1, 22-10-1w, rig up.

LAUDERDALE COUNTY (Meridian Dist.)—Meridian Nat. Gas Co.'s Mattie Houser 1, 33-8-18, sd in white gumbo, td 2410 ft. Lauderdale O. & G. Co.'s Lackey 1, 2-7-16, coring 2741 ft. J. E. Smith Oil Co.'s Craig 1, 2-6-14, dk.

LINCOLN COUNTY (Brookhaven Dist.)—

TITUSVILLE OIL COUNTRY MACHINERY
BUILT WITH RESERVE RUGGEDNESS



THIS IS THE ENGINE YOU WANT

THE NEW Acme Twin-Cylinder Engine

with Timken bearing crankshaft and totally enclosed crankcase.

Specification details on request.

BECAUSE you can depend on it to deliver the goods.

Every moving part is sealed in an oil bath and the crankshaft is mounted on Timken Roller Bearings.

These things are done to make Titusville Engines the best that you can buy. And that's the engine you want.

THE TITUSVILLE IRON WORKS CO.
Division of Struthers-Wells Titusville Corp.
TITUSVILLE, PA.

For Export
The Continental Well Supply Co.
72-76 Trinity Court,
New York City, N. Y.

Distributors
The Continental Supply Co.

For California
California Machinery Supply Co.
2449-55 Hunter St.,
Los Angeles, Calif.

TITUSVILLE
ROLLER BEARING STEAM ENGINES

TIW-25

Lincoln O. & G. Co.'s Pat Case 1, 21-8-6, dr gmbo 865 ft, claim gas show 840 ft.

LEE COUNTY — Lee County Pet. Co.'s Hickman 1, 12-8-6, sd 920 ft.

MONROE COUNTY (Amory Dist.)—Amory Pet. Co.'s Hall 1, 8-13-17, fsh tools, td 3045 ft. Amory Dev. Co.'s Bourland 1, 2-13-19, ready to resume dr, td 2580 ft. Park Bowser's Cowart 1, 2-12-19, arr to resume with drill pipe.

RANKIN COUNTY (Jackson Dist.)—Home Oil Prod. Co.'s Rainey 1, 13-5-1e, set 12½-in cas 225 ft.

WARREN COUNTY (Vicksburg Dist.)—Henderson et al's Dornbusch 1, 8-18-15, sd 2350 ft.

WEBSTER COUNTY—Cumberland Oil Co.'s Henley 1, 15-21-11, td 1865 ft.

YALABOUSHA COUNTY (Water Valley Dist.)—Philip Bros.' James 1, dr black shale 3107 ft using fish tail bit. J. D. Colette et al's Blackmer 1, 14-11-4w, lcn.

ALABAMA

CHOCTAW COUNTY—Robinson & Greer's Douglas Oil Co. 1, 15-9-2, dr chalk 2525 ft. Gulf Ref. Co.'s Dease 1, 33-9-2, dr 800 ft. McCall 1, 30-9-2, dr depth not given; Lassiter 1, 26-9-3, dr 500 ft; Stallworth 1, 7-9-2, dr 535 ft.

HOUSTON COUNTY—J. R. Sealy's Fee 1, 13-1n-27e, changing to rotary from cable tools, td 3100 ft.

LAMAR COUNTY—Briggs & Knapp's Wefel 1, 25-12-14, set 6-in cas 1040 ft, sd, waiting on sand line, td 1200 ft.

LAWRENCE COUNTY — Peerson Drilling Co.'s Jacobs 1, 11-7-7, TA 300 ft.

MARION COUNTY—P. J. McAlpine's Clark 1, 29-11-14, lcn.

SUMTER COUNTY—B. W. Bates' Fee 1, 3-18-1w, sp.

WASHINGTON COUNTY—Hobson et al's Wilson 1, 27-7-1w, sd 650 ft; Hobson Bros. 1, 9-8-2, 6-in cas stuck in sand and shale 1450 ft. Oscar Brown's U. S. Land & Cotton 1, 26-3-2, no report.

TENNESSEE

DECATUR COUNTY—Chester O. & G. Co.'s Montgomery 1, set 6-in cas 1045 ft, dr 1127 ft. Standard Oil Co. of La.'s Wyatt 1, dr 1275 ft.

NORTH LOUISIANA

Completions

Company, Well and Location	Initial Production Bbls.	Depth
BIENVILLE PARISH—		
W. G. Gray, Tr., Snyder 1, 15-16-6w.	*	3808
BOSSIER PARISH—		
Deleware-La. Dev. Co., Bolinger 4, 38-23-11	50	3170
LASALLE PARISH—		
Tunica Pet. Co., L. & A. 49, 17-7-2e.	20	822
RAPIDES PARISH—		
G. E. Silbertson, Willemach 3, 13-5n-4w	*	2250
Glenmora Pet. Co., Fee 1, 1-2n-2w	*	3850
WEBSTER PARISH—		
Kemp et al, Campbell 1, 11-22-10.	Junked	2753

BIENVILLE PARISH—W. G. Gray, Tr.'s Snyder 1, 15-16-6w, dry, abn, td 3808 ft.

BOSSIER PARISH—Nemours Corp.'s Kilgore 1, 31-23-11, arr deepen, td 3062 ft. Corbett et al's Murff 1, 16-17-11, sd 990 ft. Nell & Lanier's Biedenharn 1, 23-21-14, sd repr rig, td 790 ft. Walker et al's Antrim 1, 28-22-13, tested show oil 3078 ft, arr deepen. John F. Woodman's Bolinger 1, 9-22-11, sd wo 3532 ft. Deleware La. Dev. Co.'s Bolinger 4, 38-23-11, 50 bbls o'l, td 3170 ft. Frank Estes' Pardee 2, 3-22-11, rig up.

CADDO PARISH—Sam Gold et al's Hunter 3, 17-19-14, dk; Hunter 4, 17-19-14, lcn. S. T. Onyett, Tr.'s Dixon 1, 10-19-14, set 6⅝-in cas 2382 ft. I. N. Pharris, Tr.'s Oden 1, 19-19-14, dr 1710 ft. Ohio Oil Co.'s Hunter 4, 17-19-14, dk; Hunter 6, 17-19-14, bldg dk. Standard Oil Co. of La.'s Henderson 3, 7-19-14, dk; Hunter 3, 17-19-14, set 6-in cas 2360 ft; Hunter 8, 17-19-14, dk; Hunter 9, 8-19-14, dk; School Board 2, 16-19-14, bailing, td 2441 ft; School Board 3, 16-19-14, dr 1918 ft. Lide et al's Levee Bd. 1, 24-19-15, dr 2165 ft; Hunter 1, 22-19-14, 5½ ft sand standing 600 ft oil in hole, WOSR, td 2468 ft. Gulf Ref. Co.'s Hunter 4, 17-19-14, dr 1555 ft; Hunter 5, 17-19-14, dr 1050 ft; Oden 5, set 6⅝-in cas, td 2425 ft. Haynes Bros.' Oden 1, 20-19-14, dr 150 ft. Texas Co.'s Hunter 2, 9-19-14, dr 375 ft; Hunter 3, 8-19-14, rig up. Old River Oil Corp.'s Sibley 1, 15-19-14, dr 210 ft. Ray-Dawes Drilling Co.'s Hunter 3, 9-19-14, full o l setting 2½-in tubing with pkr, td 2440 ft; Hunter 4, 9-19-14, lcn. J. E. Woodley's Pittman 1, 23-19-14, sp. R. W. Norton's Hill 1, 23-21-16, sr to bottom, td 3050 ft.

CLAIBORNE PARISH — El Dorado Chief Oil Co.'s Dance 1, 27-20-7w, sd for fuel 1500 ft. Triangle Drilling Co.'s Kilpatrick 1, 7-19-5w, rig up.

DESOTO PARISH—Benson O. & G. Co.'s Wise 1, 3-10-13, bldg dk. P. J. Decker's Tull 1, 23-21-13, fsh ds 2475 ft. Fair et al's Hamilton 1, 1-12-13, sd wo 2855 ft. L. M. Moffitt, Tr.'s Boatright 1, 3-10-13, sd wo 3129 ft. Longstreet Synd.'s Ramsey 1, 33-13-16, TA 2802 ft. R. O. Roy's Rogers 1, 13-13-14, dr 2810 ft.

FRANKLIN PARISH—Davis et al's Moore 1, 12-11-6e, sd 1430 ft.

LASALLE PARISH—Tunica Pet. Co.'s L. & A. 49, 17-7-2e, pumping 20 bbls o.l, td 822 ft; L. & A. 50, 16-7-2e, 10 ft sand, WOSR, td 814 ft.

MOREHOUSE PARISH — Rainbow Oil Co.'s Louisville Cooperage 1, 33-22-8e, dk. J. P. White's Chess Wymond 1, 32-19-6e, tested sw, sd wo, td 3025 ft.

NATCHITOCHES PARISH — S. D. McDaniels' Clark-Morse 2, 23-5-6w, sd 2536 ft. Robeline O. & G. Co.'s Cassady 1, 7-8-9w, ds stuck 3230 ft. Nichols & Wilder's Clark 1, 10-10-8w, rigged up wo.

OUACHITA PARISH—Haynes Bros.' Dixie Lbr. Co. 1, 54-17-3e, lcn abn, will not drill. Forrest & Russell's School Fee 1, 16-16-4e, sd wo 4350 ft.

RAPIDES PARISH — G. E. Silbertson's Willemach 3, 13-5n-4w, dry, abn, td 2250 ft. Glenmora Pet. Co.'s Fee 1, 1-2n-2w, dry, abn, td 3850 ft. Ayers Bros.' Wicklipp 1, 9-5n-2w, dr 300 ft.

RED RIVER PARISH — W. D. Ball's Krumbholz 1, 32-14-10, dr 50 ft. Benedum & Trees' Franklin 1, 29-11-9, tsted 1 M ft gas 2987-3017 ft, dr 3052 ft. D. H. Reddick's Johnson 1, 17-12-10, rig up. Le Grande et al's Sample 1, 11-14-11, rig up. Eylers Oil Co.'s

Have a Copy Sent to Your Home

Why depend on reading the "Office Copy" when you can get a copy of The OIL WEEKLY for your own files,—sent to your home each week for

ONLY $1.00 A YEAR

Use the Coupon NOW

- - - - - - - - - - - - - - - -

The OIL WEEKLY,
Box 1307, Houston Texas.

Gentlemen: Please find enclosed one dollar (check or currency will do) for which send me your publication for one year.

Name .....

Street and No. .....

City ..... State .....

I am with the ..... Company

and my position is .....

(BE SURE TO STATE COMPANY AND POSITION, otherwise it will be necessary for us to hold up entering your subscription until we can get this information from you.)

"BOOMERS"

Stacy Swivel Load Binders

No Load Too Big—None Too Heavy For This Handy, Time-Saving Tool

Stacy Swivel Load Binders make hauling safe and save time and work. They bind any load quickly, securely, easily.

Made in 5 sizes, weighing from 2 lbs. to 14 lbs. for each single tool, not for a pair as commonly quoted, sold and used.

Every Oil Field in the World Uses Stacy Binders

Just ask your jobber or export agent for Stacy Load Binders in the size you want. He'll do the rest.

I also sell chains. Any weight, size or length with hooks or as desired.

EUGENE C. STACY
Manufacturer
Tiffin, Ohio., U. S. A.

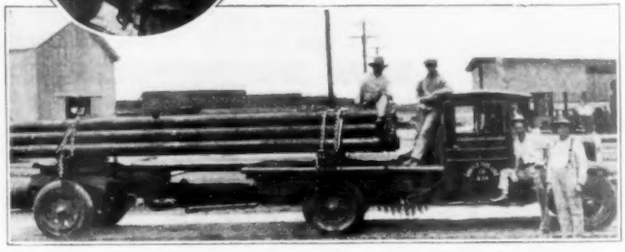


Photo number one above shows a 12 unit combination gasoline and gas lift plant erected by Dresser & Gorton for Slick and Skelly in the Earlsboro Field, Oklahoma. Expert and experienced attention to all types and sizes of turn-key construction work in erecting steel buildings, compressor stations, gasoline plants, etc., has won an enviable reputation for our organization among all of our clients. Let us plan your next construction job.

Photo number two, above, is a Manning "Durab'lt" House of six rooms. What an improvement it presents in appearance, and comfort, over the old style sectional house. "Durabilt" Portable Lease, Bunk and Farm Houses, Garages, Tourist Camp Houses, etc., contain more building material, with tighter construction and less construction joints than any other portable house on the market. For information address, Oil States Manufacturing Company.

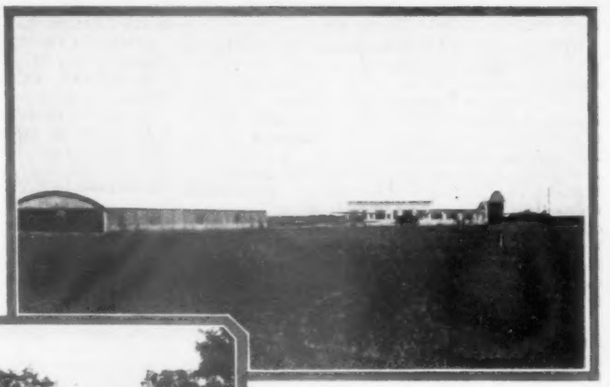


Photo number three is a view of the second largest aeronautical school in America, the Wilcox Airport and Collier School of Aeronautics, east of Tulsa. The plant shown in the picture was furnished and erected complete by Dresser & Gorton, Inc., and indicates the care and workmanship that characterizes Dresser & Gorton engineering and construction.

Standard Tool Company Milling Cutters, combined drill and counter sink. Machine Tool & Supply Co., distributors.

"TOLEDO"

Miller's Falls Portable Grinders carried in stock.

Standard Tool Metal Cutting Saws

Standard Tool Company High Speed Drills

RIGID WRENCHES
in all sizes are available from stock at all times.

DRESSER & GORTON, Inc.

ENGINEERS *and* CONSTRUCTORS
MAYO BLDG., TULSA, OKLA.

Distributors of:
Stefco Steel Buildings — Anchor Post Fences

Subsidiary Companies

OIL STATES MANUFACTURING CO.
Builders of Manning "Durabilt" Houses
TULSA OKLA.

MACHINE TOOL & SUPPLY CO.
A complete stock of supplies and equipment for the machine shop.
TULSA OKLA.

Chaffraix 2, 30-12-10, dr 950 ft. Triple Oil Co.'s Pollock 1, 33-13-11, rig up.

RICHLAND PARISH—Austin & McDonald's Millsaps 2, 17-17-6e, sd wo 2697 ft; Millsaps 3, 16-17-6e, sd wo 2477 ft; Millsaps 4, 16-17-6e, lcn; Millsaps 5, 8-17-16e, dk. S. R. Humble's Binion-Sartor 1, 22-17-6e, tested 3 M ft gas, heading well, td 2481 ft Palmer Corp.'s Eubanks 1, 26-17-6e, dk; La. Pet. Co. 1, 22-17-6e, cemtd 4¾-in cas 2375 ft, td 2478 ft; Miles 2, 12-17-6e, set 6-in cas 2315 ft. Southern Carbon Co.'s Binion-Sartor 1, 21-17-6e, set 6-in cas 2273 ft. Northern La. Nat. Gas Co.'s Boykin 4, (relief well 3), 20-17-6e, dr 1892 ft. Hope Prod. Co.'s Boykin 1, 21-17-6e, set 6⅝-in cas 2292 ft. Palmer Corp.'s Boykin 1, 21-17-6e, set 6-in cas 2315 ft.

SABINE PARISH—R. L. Gay, Tr.'s Bowman-Hicks 4, 14-7-14, making oil occasionally by heads, WOSR, td, 2350 ft; Long-Bell Lbr. Co. 1, 26-8-14, dr hard lime 3377 ft; Sabine Lbr. Co. 2, 23-7-14, dr 3395 ft; Bowman-Hicks A-1, 34-8-12, dr 500 ft. A. H. Tarver's Long-Bell Lbr. Co. 1, 29-8-13, set 6⅝-in cas 3378 ft, bailed dry, arr swab, td 3535 ft; Long-Bell Lbr. Co. 2, 18-8-13, TA 2100 ft. R. L. Gay Tr.'s Bowman-Hicks 5, 14-7-14, bldg dk.

UNION PARISH—Fred Stovall's Stovall 1, 32-23-4e, lcn.

WEBSTER PARISH—F. M. Fuller's Munzingo 1, 27-18-8, dk. P. Hudson's Slack 1, 1-22-11, WOSR, td 2747 ft; Gardner 1, 1-22-11, rig up. Kemp et al's Campbell 1, 11-22-10, junked, abn, td 2753 ft. Magnolia Pet. Co.'s McCook & Hibbler 1, 22-21-10, dr 6852 ft; Kight 1, 33-23-9, set 8⅛-in cas 2674 ft. J. W. Clark, Tr.'s Wise 1, 30-23-9, dr 1350 ft.

WEST CARROLL PARISH—W. F. Hyde et al's Chickasaw Imp. Co. 1, 24-23-11e, dr 2570 ft. La. Gas & Fuel Co.'s Marston 1, 12-19-10e, rig up.

EAST TEXAS

Completion

HARRISON COUNTY—
McRitchie et al, Dean 1, Craft sur.. sw 2804

BOWIE COUNTY—Hooks O. & G. Co.'s Rosenberg 1, King sur, TA 3086 ft.

CAMP COUNTY—Rogers et al's Enfelt 1, Montgomery sur, sd 1920 ft.

HARRISON COUNTY—McRitchie et al's Dean 1, Craft sur, sw, abn, td 2804 ft.

RED RIVER COUNTY—D. M. Buffington's Hoosier 1, Hughart sur, sd 1863 ft. Shad Harper's Garland 1, Wagley sur, sd 1862 ft. Johnson Pet. Co.'s Randolph 2, Dean sur, sd 1440 ft.

SHELBY COUNTY — Chapparral Oil Co.'s Holt 2, Matthew Moore sur, sd 3004 ft. Gulf Ref. Co.'s Pickering Lbr. Co. 2, Patterson sur, lcn. Benedum & Trees' Pickering Lbr. Co. 1, Yordt sur, dr 950 ft.

ARKANSAS

Completions

OUACHITA COUNTY—
E. M. Jones, Wilson A-1, 25-15-18.junked 3378

UNION COUNTY—
McDonald Bros., Mayfield 1, 29-19-15 . . . . . * 2210

ASHLEY COUNTY—J. C. Marcum's McCarry 1, 10-19-4, dr 2691 ft.

COLUMBIA COUNTY—Talbert & Markle's Copeland 1, 31-19-19, sd laying water line, td 50 ft. Laskin et al's Dennis 1, 11-20-23, sd wo 3696 ft. Helena O. & G. Co.'s Pickler 1, 19-19-22, sd 2763 ft.

DREW COUNTY—McClintock & Goedke's Ogle 1, 35-13-5, sd 2530 ft.

FAULKNER COUNTY—Gold Creek O. & G. Co.'s Stermer 1, 17-4-13, TA 3782 ft.

FRANKLIN COUNTY — Ozark Nat. Gas Corp.'s McElroy 1, 15-8-27, lcn.

GARLAND COUNTY—H. H. Given's Garrett 1, 1-13-19w, sr 3056 ft. Chaywood Oil Co.'s Malvern Lbr. Co. 1, 17-2-17, sd wo 1668 ft.

GRANT COUNTY—Jones & Watkins' Meek 1, 5-4-11, TA 1400 ft.

JOHNSON COUNTY—Blackwell O. & G. Co.'s Wyver 1, 21-9-25, dr 5360 ft. Ark. La. Pipe Line Co.'s Bynum 2, 12-10-24, set 6-in cas 3255 ft, dr with tools 3340 ft.

LINCOLN COUNTY—Pine Prairie O. & G. Co.'s Carter 1, 33-10-6, arr resume dr 2176 ft.

LITTLE RIVER COUNTY — Grote et al's Allen 1, 31-12-31, TA 2941 ft. C. F. McDonald's Black 1, 12-13-28, coring 1910 ft.

Buck Oil Co.'s Taafe 1, 25-12-32, cemtd 12½-in cas 20 ft, dr 860 ft.

LOGAN COUNTY—Ark. La. Pipe Line Co.'s Hanna 1, 26-7-23, dr 3474 ft.

MADISON COUNTY—Phillips Pet. Co.'s Skinner 1, 11-14-25, dr 300 ft.

MILLER COUNTY — Lenz et al's Bosier Land Co. 1, dr around 2000 ft.

OUACHITA COUNTY—Copenhaver et al's Warnick 1, 2-15-17, dr 2055 ft. Flaucher et al's Bucks 1, 7-15-17, TA 2465 ft. Chas. McDonald's Fogle 1, 18-14-16, sd wo 2301 ft. Wesson et al's Booth 1, 12-15-19, sd 2203 ft. Artex Oil Co.'s Wilson A-1, arr perf cas at 2755 ft. Houston Oil Co.'s Wilson B-1, 25-15-18, coring 2368 ft. E. M. Jones' Wilson A-1, 25-15-18, junked, abn, td 3378 ft. Atlantic O. P. Co. and E. M. Jones' Allen C-1, 25-15-18, lcn. Timberlake et al's Crimer 1, 26-14-18, set 10-in cas 80 ft, dr 110 ft.

POPE COUNTY—Ark. La. Pipe Line Co.'s McFadden 1, 15-9-21, dr with cable tools depth not given.

PRAIRIE COUNTY — Transcontinental Oil Co.'s Novack 1, 36-2-6, rig up.

PULASKI COUNTY—Wonder State Dev. Co.'s Wilson 1, 21-2-11, dr 1452 ft.

SEBASTIAN COUNTY—Lavaca O. & G. Co.'s Cason 3, 21-8-30, dk.

ST. FRANCIS COUNTY — W. F. Harris' Halbert 1, 32-4-4, sp.

UNION COUNTY—S. Arrendale's Gallagher & Nelson 1, 18-18-17, sd 2268 ft. E. M. Jones' Loutre Shingle 1, 17-19-14, bldg dk. Johnson-Gummer O.I Co.'s Cargile 1, 4-18-13, TA 3343 ft. W. M. Coates, Tr's McDuffie 1, 32-19-16, set 6⅝-in cas 3934 ft, td 4056 ft. McDonald Bros.' Mayfield 1, 29-19-15, dry abn, td 2210 ft. T. J. Woodley's First National Bank 1, 34-19-18, dk. J. P. Hawkins et al's Goodwin 1, 6-17-15, sd 2575 ft. Addy & Mcdisette's Union Sawmill 1, 25-19-12, lcn. E. M. Jones' Henry Murphy 1, 34-19-14, dr 3043 ft. Simon et al's Welch 1, 30-19-17, lcn. O. W. Estes' Felsenthal 1, 2-18-15, set 10-in cas 62 ft, dr 1470 ft.

WASHINGTON COUNTY — Lincoln Lease Holding Co.'s Townsite 1, 30-15-32, sd repr rig 1050 ft. C. H. Willoughby's Jones 1, 34-16-30, sd 1900 ft. O'Hara & Shetterley's Boyd 1, 12-16-32, ur cas 150 ft.

WHITE COUNTY—Letona Synd.'s Letona 1, 35-9-8, dr caving shale 3500 ft.

VAN BUREN COUNTY — J. S. Martin's Scanland 1, 5-9-13, sd 50 ft.

MOUNTAIN STATES

WYOMING

BIG HORN—P. & R., 3, 24-56-98, dr 4213 ft.

CARBON—P. & R., Grenville 3, 28-21-86, dr 755 ft.

FREMONT—P. & R., Muskrat 6, 17-33-91, diamond dr 181 ft. Kinney-Coastal, 22-3-1, dr 3567 ft. Texas Prod. Co., State 1, 36-34-95, fill back from 640 ft to 200 ft.

HOT SPRINGS—Texas Prod. Co., sw 23-45n-100w, fsh lugs 3704 ft. Midwest 8, 6-44-98, cem 946 ft. Gebo Cons. 23-43-95, show 800 ft. Ohio, Smith 1, 9-46-99, rig.

LINCOLN—Midwest, Grey's River 1, 25-37-117, dr 1636 ft.

PARK—P. & R. Pitchfork 1, 14-48-102, dr 1840 ft. Midwest, Rosenburg 1, 26-58-98, re ur 1783 ft. Ohio, Burlington 1, 21-53-101, sd 1347 ft.

SWEETWATER — Mtn. Fuel Supply Co., Tucker 1, 18-13-99, run 6⅝-inch 2850 ft. Mtn. Fuel Supply, Cappers 1, 2-19-104, spudded 60 ft. Mtn. Fuel Supply, U. P. 1, 13-19-104, bldg rig. Montacal Associated, twp 16 n, range 104w, mvg in.

UINTA—California Co., U. P. 1, 7-17n-119w, dr 4345 ft. Park City Oil Co., Christenson 1, 6-15n-113w, standing. Doheny interests, 6-14-118, dr.

WESTON—Wyo. Drlg. Synd., 15-44-64, sd 5000 ft, waiting for orders. Gose Synd., 28-47-64, resum at 5000 ft. Fiddler Creek Synd., 11-45-64, cave at 950 ft.

MONTANA

CARBON—Ohio Oil Co., Northern Pacific 2, 11-7s-21e, cem and straightening, td 3850 ft.

CASCADE—O'Neil, Betts 1, ne 11-21-3e, fsh 400 ft.

CUSTER—Montana Belle O. & G. Co., 28-8n-45e, dr 4120 ft.

FERGUS—Melton Corp., sw 24-21n-17e, fsh.

GALLATIN — California Co., Ringling 1, 35-5n-7e, dr 2265 ft.

GARFIELD—Montana Corp., 36-16n-38e, dr 1000 ft.

GLACIER—Jos. Drumheller et al., Yunck 1, nw 1-34-6w, try dr by 6-inch to shoot.

HILL—Jones Oil Co., Brown's Coulee 1, nw 32-34-14e, pipe trouble 1250 ft.

LIBERTY—Square Deal Oil Co., Federal Land Bank 1, sw 1-32-7e, dr 3250 ft. Bear's Den, Watford 1, 17-36-6e, shot and co. Thompson, Thompson 1, 7-34-4e, dr 1750 ft.

PETROLEUM — Minnesota-Flatwillow Oil Co., 2, sw 5-12-25e, ur. Minnesota-Flatwillow 3, se 5-12-25, rigged.

PONDERA—Midwest, Snortland 36, se 27-27-3w, abn 1942 ft. Hammond et al., Kateu 1, 24-26-1w, cas. 1701 ft. Butte Synd., Meuli 1, ne 15-29-1w, dr 1550 ft. Valier-Williams Oil & Gas Co., 7-29-4w, rigged and ready to spud.

SWEETGRASS—Carter Oil Co., Six Shooter 1, 17-3n-19e, dr 2475 ft.

TETON—Hawley et al, ne 15-29-1w, spud. L. B. O'Neil, 16-25-5w, dr 1750 ft. Mitchener et al, Rondas 1, 9-23-1w, lost hole, skidded, re-rigged. H. B. Chesser et al, 4-23-8, spudded. Texas Prod. Co., Wolfer 1, 31-26-3w, dr 400 ft. Rocky Mtn. O. & G. Co., Salmond 1, ne 4-23-8w, rigging up over old hole.

TOOLE—Monalta Oil Co., Ltd., Buckley 1, se 1-37-4w, dr 1790 ft. Anaconda Pete Co., ne 19-36-2e, dr 1700 ft. Mahan et al, Lee 1, 10-31-1w, try water so at 2265 ft. International Roy. Hold, Co., Pederson 1, sw 21-35-1e, dr 1851 ft. International Roy. Hold. Co., Henry 1, 26-35-3e, water trouble 450 ft. Black Gold Pete Co., Toole 1, nw 22-36-1e, dr 200 ft. Roxana Dr. Co., Toole 1, 22-36-1e, dr 200 ft.

YELLOWSTONE — Montana Corp., 16-4n-26e, dr 950 ft.

COLORADO

BENT—Continental, Pipe Springs 1, se 27-29-49, sd 4801 ft.

DELTA—Crawford O. & G. Co., ne 28-15s-1w, dr 350 ft.

DOLORES—Transcontinental, Glade 1, nw 30-41-16, fsh 4005 ft.

ELBERT—Belmont Oil Co., Maher 1, sw 4-6s-59w, carry 6⅝-inch at 3635 ft.

HUERFANO—Parker Club, Inc., 1, 4-28-68, dr 3415 ft.

JACKSON—Midwest, Rich 21X, nw 9-6-8, 10-inch at 2500 ft. P. & R., Hendershot 1, 2-6-81, dr 2600 ft.

JEFFERSON—Ruby Hill O. & G. Co., Braden 1, se 14-4s-69w, carry 6¼-inch 3472 ft.

LAS ANIMAS—Trinidad Dev. Co., Flontz 1, sw 23-32-63, dr 1557 ft. Parker Club-Kinney-Coastal, Fee 1, 14-4s-58, dr 3415 ft.

LARIMER—Barrows et al., 7-11s-68w, sd 2000 ft. Standard of Colo., Hertha 1, 21-4n-69, rig.

LA PLATA—Royal P. & R., Red Mesa 1, 27-33-12, sd 360 ft. Detroit Oil Assn., Olbert 1, sw 9-35-12w, dr 1970 ft.

LINCOLN—Kelly Oil Co., State 1, ne 36-14-57, stand. 2480 ft.

MESA—Argo Oil Co., Hoel 1, ne 23, mvg in, to ur 8¼-inch to 2712 ft.

MOFFAT—McLaughlin et al., Wms. 1, 2-3-91, dr 4239 ft. McCormick et al, Sales 1, se 28-4n-92, dr 3200 ft. Vermillion O. & G. Synd., 1, se 23-9n-100w, dr 700 ft.

MONTROSE—Uncompaghre O. & G. Co., Colo. Title & Trust 1, 27-50-10, stand. 2070 ft.

MONTEZUMA—Hallet et al, 1, sw 14-36-14, sd 50 ft.

PUEBLO—Boone O&G, Ritter 1, 38-18-60, tools lost.

RIO BLANCO—White Eagle, Fordham 1A, sw 9-2-96, fire repairs 2870 ft. Texas Prod. Co., Potter 1, sw 30-2n-96w, co 3990 ft.

ROUTT—Midwest, 10, nw 4-7-86, run 8¼-inch at 1420 ft.

YUMA—Major Pete, Black Wolf 1A, sw 7-2-43, stand. 1535 ft. Phillips, Andrea 1, nw 3-2-42, dr 3615 ft.

WASHINGTON — Donohoe et al, Middlemist 1, se 14-4s-56w, dr 270 ft.

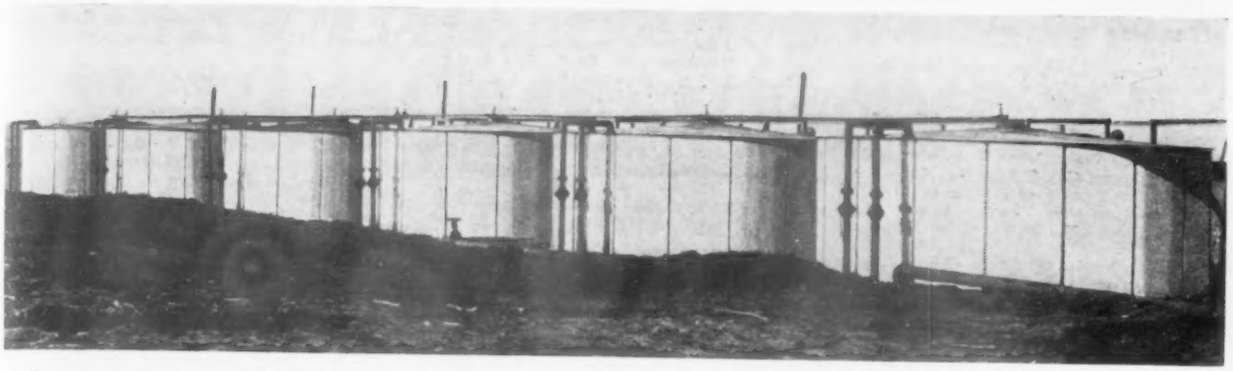
WELD—Platte Valley Pete Corp., Patterson 1, sw 23-8n-61w, run 4¾-inch 4005 ft.

NEW MEXICO

CHAVES—Warman Oil Trust 1, sw 23-13-24, rig burned. Cactuc Prod. Co., Sullivan 1, 14-10s-28e, dr 623 ft.

DE BACA—Matador Oil Co., State 1, sw 6-4n-20e, ur for water so 2705 ft. Pittsburg Oil Co., 1, ne 16-1s-27e, wait for cas 4506 ft. Transcontinental, McWhorter 1, 6-35-22e, dr 4565 ft.

GUADALUPE—Los Angeles-Hollywood Oil



MALONEY PATENTED BOLTED COPPER-STEEL TANKS

DURING The EXPOSITION...
You are Invited to Visit us at Booth 48
Oklahoma Bldg., or at our Plant, 108 N. Peoria Ave.

MALONEY

Synd., McMullen 1, sw 24-5n-16e, skidded rig and spudded.

LEA—Midwest, Leech 24, nw 15-19-38 showing for about 400 bbls at 4000 ft. Midwest, Gregory 22, sw 31-25-37, prep to deepen from 3320 ft. Gypsy Oil Co., Mattern 1, 24-21-36, dr 3941 ft. Exploration Co., Record 1, 26-19-35, td 4556 ft. Texas, Moberly 1, se 17-26-37, sd 3542 ft. Empire Gas & Fuel Co., Closson 1, se 6-22-36, try so gas 3540 ft. Texas, State 1, 2-21-33, ready to spud. Empire Gas & Fuel Co., State 2B, se 5-21-35e, dr 945 ft. Ohio Oil Co., State 1, 9-13-38, dr 3480 ft. Buell & Hagen, State 1, ne 13-11s-35e, dr 3100 ft. Conoco, State 1, 1-21-33, rigging. Conoco, Myers 1, sw 17-21-36e, chang to rotary. Conoco, Meyer 1, nw 28-22s-36e, dr 3119 ft. Conoco, Wells 1, ne 11-25-36, plug back from 3560 ft. Shell Pete Corp., Terry 1, ne 22-19-38, dr 2750 ft. Humble O&R Co., Bowers 1, 30-15-38, fsh dr stem, td 3270 ft. Humble O. & T. Co., Lindley 1-B, se 14-25-36, dr 3115 ft. Rector Oil Co., King 1, sw 27-25-32e, dr 3709 ft. Walker et al., Terry 1, se 10-19s-38e, temp. compl. 4155 ft., about 500 bbls. Texas Pacific C. & O. Co., State 2, sw 21-22-36, dr 3700 ft. Magnolia Pete Co., Lindley 1, ne 26-25-36, pipe collapsed 2960 ft. Maljamar O&G Corp., Bais 2, ne 21-17-3e, dr 3485 ft. Reynolds Drlg. Co., Merchant 1, nw 15-22-34e, dr 1910 ft. Penn Oil Co., State 1, ne 21-19s-36e, dr 200 ft. Bordages et al, Hughes 1, 27-19s-38e, try so wat., td 4012 ft. Morton et al, State 1, nw 32-11s-38e, dr 1915 ft. Barnsdall Corp., 1, 8-17s-38e, ready to spud.

McKINLEY—J. W. Halsell, Santa Fe 1, 17-19-9, dr 2581 ft. San Juan C. & O. Co., 1, se 27-18n-9w, sd 2204 ft. Wms et al, A. T. S. F. 1, sw 19-18n-8w, dr 1385 ft.

ROOSEVELT—Smith & Sloan, Lovern 1, se 4-3s-36, sd 4512 ft.

RIO ARRIBA—Berringer et al, Hartman 1, ne 8-29-7, dr 825 ft.

SAN JUAN — Dorothy Oil Co., 29-30-9, stand 870 ft. Kutz Canon O&G Co., Day 1, 20-22-10, dr 950 ft. Blackrock Oil Co., 1, sw 11-25-13, sd 1550 ft. Angel Peak Oil Co., Kutz Canon 1, 11-28n-11w, sdtr lost bailer. Greathouse et al, Roderick 1, sw 11-22-14, prep to run 6⅝-inch to so water 700 ft. Childers Dr. & Pr. Co., Westwater 2, nw 34-31-18, sd. Reserve Oil Co., Shaffer 2, ne 1-21-14, dr 675 ft.

SAN MIGUEL—Dorothy Oil Co., 29-30-9, stand. 847 ft. Kutz Canon O&G Co., Day 1, 20-22-10, install new engine.

SAN MIGUEL—Pioneer O&G Co., Thunderbird 1, nw 14-15-16, dr 2125 ft. Starr Oil Co., Adams 1, ne 25-17-16, dr 2520 ft.

SOCORRO—Arnold et al., 2, ne 13-6-1, sd indefinitely 1975 ft.

TORRANCE—Williams et al, Staplin 1, ne 16-8n-10w, dr 905 ft.

VALENCIA—Rio Puerco Oil Co., N. M.-Ariz. Land Co., 2, nw 13-6-2, wait pipe 3145 ft, water shortage. Acme Oil Co., N. M.-Ariz. Land Co. 1, 26-6-3, dr 4055 ft.

OKLAHOMA

WOODS COUNTY—T 28n, R 16w, Sec. 14, Peerless et al, Cromwell 1, c sw se, sd 1500 ft.

GRANT COUNTY—T 28n, R 4w, Sec. 12, Boucher et al, Dedman 1, sw se, dr 3105 ft.

KAY COUNTY—T 28n, R 1w, Sec. 24, DeCamp & Lancer, Covey 1, sec ne, top Wilcox 3456-78 ft, hfw, sd.

WOODS COUNTY—T 27n, R 16w, Sec. 33, Sinclair, Share 1, c ne sw, fsh 5315 ft.

ALFALFA COUNTY—T 27n, R 11w, Sec. 12, Smith Bros., Forbes 1, ne se nw nw, sd 1420 ft.

GRANT COUNTY—T 27n, R 5w, Sec. 20, J. V. Bailey, Brewer 1, c sw se, rog.

HARPER COUNTY—T 26n, R 24w, Sec. 14, Sinclair, Howell 1, c sw sw, dr 4835 ft.

KAY COUNTY—T 26n, R 2e, Sec. 32, J. A. Vincent et al, McNeal 1, nwc ne, sd 2795 ft.

HARPER COUNTY—T 25n, R 22w, Sec. 14, Hoffer Oil Co., Cooper 1, nwc se, sd 4182 ft.

WOODS COUNTY—T 25n, R 15w, Sec. 10, Bu Vi Bar et al 1, sec sw, dr 5870 ft.

GRANT COUNTY—T 25n, Range 4w, Sec. 22, Cowden, Vollmer 2, nec se ne sw, lost tools 5640 ft sd.

WOODWARD COUNTY—T 24n, R 17w, Sec. 32, Otstot, Simmons 1, sec, sd 1500 ft.

WOODS COUNTY—T 24n, R 13w, Sec. 18, Miller et al, Copenhaver 1, nwc spudded and sd.

ALFALFA COUNTY—T 24n, R 11w, Sec. 14, Washoma, Acre 1, swc ne, spudded.

GARFIELD COUNTY—T 24n, R 6w, Sec. 9, Pulse & Beamer, White 1, sec nw, hfw 4730-4800 ft, td 5556 ft, pulled 8-inch 400 ft oil in hole.

WOODWARD COUNTY—T 23n, R 20w, Sec. 9, Billy Oil Co., Wyatt 1, c se, hfw 3807-25 ft, hfw 4390-4400 ft, td 4400 ft. T 23n, R 17w, Sec. 2, John Farrand, Belva 2, csl sw se, sd 1387 ft.

NOBLE COUNTY—T 22n, R 1e, Sec. 22, Peerless et al, Wentz 1, nwc sw, dr 490 ft. T 22n, R 1e, Sec. 24, Gypsy Oil Co., Dailey 1, sw ne ne, hfw 4726-28 ft, dr 4832 ft.

WOODWARD COUNTY—T 21n, R 21w, Sec. 25, Sharon, Elmore 1, swc rig blown down, 3025 ft. T 21n, R 19w, Sec. 15, Burgoyne Bros., Merklin 1, sw se ne, sd 1910 ft.

MAJOR COUNTY—T 20n, R 14w, Sec. 23, Keller et al, Horton 1, c ne ne, spudded and sd.

NOBLE COUNTY—T 20n, R 1w, Sec. 26, Magnolia, King 1, sec sw, hfw 3730-3780 ft, dr 4650 ft.

BLAINE COUNTY—T 19n, R 10w, Sec. 13, Washoma Pet., Phillips 1, c nw sw, 2945 ft, sd.

LOGAN COUNTY—T 18n, R 3w, Sec. 33, Haley & Consolidated Drlg. Co., Quier 1, sec sw, sd 3970 ft.

KINGFISHER COUNTY—T 16n, R 7w, Sec. 6, Gault Brown, Bech 1, c nw se, owd, show gas 4088-6128 ft., coring at 6015 ft. T 16n, R 6w, Sec. 27, Crawford & McKenna, Sturgeon 1, nec sw, dry and abn at 4907 ft.

CANADIAN COUNTY—T 14n, R 6w, Sec. 9, A. D. Spears, Piatt 1, swc nw, sd 3223 ft.

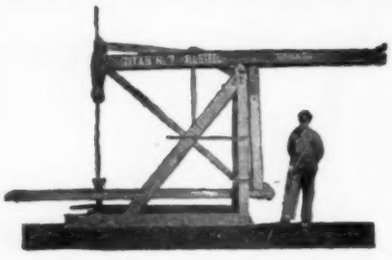
OKLAHOMA COUNTY—T 13n, R 1w, Sec. 13, T. B. Slick, Martin 1, c n wnw, stand at 5512 ft.

TEXAS COUNTY—T 1n, R 15 E. C. M., Sec. 25, Skaer et al, Hitch 1, nwc, sd 250 ft.

OSAGE COUNTY—T 26n, R 7e, Sec. 19, Peters Pet., 1, sec, ur 8-inch at 2118 ft. Sec. 23, White Eagle 1, nwc ne se, dr 3030 ft. T 24n, R 6e, Sec. 13, A. G. Oliphant et al, 1, nec sw, dr 1245 ft.

PAYNE COUNTY—T 18n, R 6e, Sec. 4, Consolidated Drlg. Co., Freeman 1, swc, ur 8-inch 2115 ft.

LINCOLN COUNTY—T 17n, R 4e, Sec.



ATTEND THE INTERNATIONAL PETROLEUM EXPOSITION

10 Jacks Lift
263,000 Barrels in 12 Months!

IN the Big Lake Field, out in Reagan County, Texas, ten Jensen Jacks lifted 263,000 barrels of fluid from ten 3000′ wells in approximately 12 months. A Herculean feat, worthy of our Titan No. 7, heavyweight champion of the world!

Deep wells or shallow, big production or small, full time or part time, Jensen Jacks pay for themselves over and over. The most dependable and economical of all Jacks. Write for literature.

JENSEN BROS. MFG. CO.
COFFEYVILLE, KANSAS
Export Office: 136 Liberty St., N. Y.

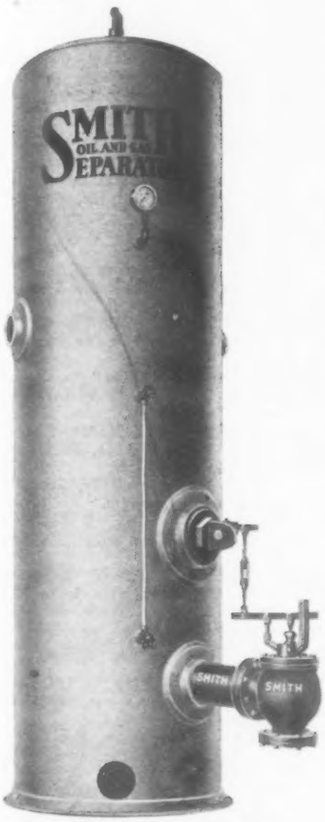
JENSEN JACKS

"If It's Worth Drilling For, It's Worth Saving"

WELCOME VISITORS

SMITH SEPARATOR COMPANY, Texas Bldg. Booths 88, 89, 90, 121, 122 and 123

In welcoming you to the International Petroleum Exposition the Smith Separator Company, as pioneers in the manufacture of Oil & Gas Separators, offers for your approval our new **Types 3-A** and **7-A** Separators. These Separators are brought out to fill a demand that has arisen, in connection with the economical production of oil and gas, during the past two or three years. Their simplicity of construction, together with volume production, has enabled us to put a very attractive price on them.



TYPE 3-A—3 Ft. x 10 Ft.
100 Lbs. Working Pressure.
CAPACITY
4,000 Bbls. Oil—8 Millon Cu. Ft. Gas

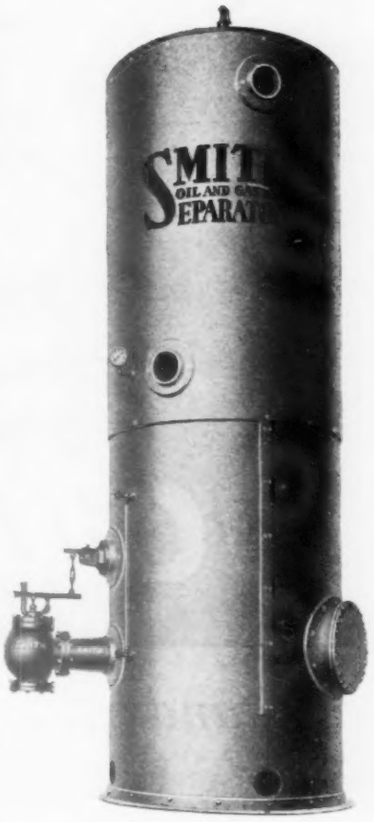
The **Type 3-A** is a welded Separator, designed to meet the demand for handling production from the small flowing or pumping well where it is advantageous to operate either with or without pressure. This Separator is equipped with our new automatic inside float control which gives maximum power to operate the oil control valve.

The **Type 7-A** Separator is welded throughout and is equipped with our new automatic type float control with a 6" Oil Valve. This Separator is well equipped to handle every production requirement and can be used to very good advantage where air or gas lift methods are in practice.

The baffle arrangement in these Separators is of a very simple and unique design and actual tests while in service have proven their efficiency beyond all expectations. Both the **Type 3-A** and **Type 7-A** Separator tanks are constructed of **"SSCO"** Steel, a metal low in sulphur and phosphorus, giving uniform tensile strength throughout. This metal is our own composition and is used exclusively in Smith Oil & Gas Separators. Although low in price, the same standard of high quality is maintained in these two types of Separators that has always existed in Smith Oil & Gas Separators, thus giving every operator the greatest return for the dollar invested of any equipment on the lease.

These Separators are sold under a positive guarantee to give you satisfaction.

Any Smith Separator Company representative will be more than pleased to demonstrate them to your complete satisfaction.



TYPE 7-A—5 Ft. x 15 Ft.
125 Lbs. Working Pressure.
CAPACITY
12,000 Bbls. Oil—15 Million Cu. Ft. Gas

Through our Research and Engineering Departments we are working constantly to meet the present day demands for the most scientific and economical methods of conservation of oil and gas. For that reason we again invite all visitors at the Exposition to call on us so that we may discuss problems of mutual interest.

SMITH SEPARATOR COMPANY
Tulsa Okla.

HOUSTON FORT WORTH SHREVEPORT LOS ANGELES

Export Offices: Oilfield Equipment Company, 30 Church St., New York, N. Y.

Gotkool...

WATER CANS & COOLERS

you see them everywhere

QUALITY SERVICE AND LONG LIFE

Gott
Water Cans & Coolers
GOTT
. . . . Have a cool supply of clean-pure sparkling water... ready to drink at all times. No matter where you are the GOTT Water Can is health insurance. Your supply store has them.
GOTT Water Cans 1½ gal; 3 gal; 5 gal; and 10 gal.
GOTT Water Coolers 3 gal; 5 gal; 8 gal; 10 gal; and 20 gal.
Gotkool
H. P. GOTT MFG. CO. · Winfield, Kansas
KEEP PURE DRINKING WATER ALWAYS HANDY

Standard...

OF THE OIL FIELDS

Simplex Jacks

for Oil Field Service and Every Type of Industry

including Utilities · Railways · Mining · Contractors ·
Pole Pulling · Pipe Pushing · Cable Reel Jacks ·
Simplex Screw Jacks - with the Visible Screw ·

Distinctive in Man Power, Safety & Simplicity

At Your Supply House

Templeton, Kenly & Co., Chicago, Ill., U·S·A·

The World's Largest Manufacturers of Jacks

27, Blackwell O. & G. Co., McKeown 1, ne sw sw, dr 4285 ft. T 17n, R 5e, Sec. 7, Mote & Wheeler, McLaughlin 1, se nw nw, dr 1705 ft. T 17n, R 6e, Sec. 28, F. R. Billinglea, Davis 1, se ne ne, fsh 1965 ft. T 16n, R 5e, Sec. 1, Flynn & Morgan, Johnson 1, swc ne, dr 580 ft. T 12n, R 3e, Sec. 29, Phillips, Roberson 1, sec nw, dr 3660 ft.

OKFUSKEE COUNTY—T 12n, R 9e, Sec. 36, Henry, Harjo 1, nwc, dr 812 ft. T 12n, R 10e, Sec. 3, Shepard et al, Shepard 1, ne nw sw, dr 2030 ft. T 11n, R 10e, Sec. 9, C. O. Buckles et al, Tarvin 1, nwc se, lcn.

PITTSBURG COUNTY—T 9n, R 16e, Sec. 32, Pattison et al, McDuff 1, swc nw se, show oil 5446-70 ft; 1 m gas 5465-80 ft, shot 240 qts. 5556-60 ft, fsh.

HASKELL COUNTY—T 9n, R 18e, Sec. 10, Marion Oil, Sanders 1, nw ne sw, 2 m gas at 1800 ft, sd 2692 ft.

LATIMER COUNTY—T 5n, R 18e, Sec. 15, Limestone O. & G. Co., Murray 1, swc 1½ M gas 2518-30 ft, show gas 3380-3400 ft, set 5-inch 3950 ft, dr 3958 ft.

OKLAHOMA COUNTY—T 12n, R 1w, Sec. 19, Mid-Kansas & Ramsey, Trosper 1, nec nw td 6904 ft, pb to 6250 ft, flowed 361 bbls. T 12n, R 2w, Sec. 30, Magnolia, Noble 1, nwc sw sw, fsh 6345 ft.

OKFUSKEE COUNTY—T 11n, R 7e, Sec. 6, Superior, Carolina 1, sec, cemtg 8-inch 4805 ft.

SEMINOLE COUNTY—T 10n, R 5e, Sec. 28, McCulloch et al, Luckett 1, nec nw, dr 4845 ft. T 10n R 6e, Sec. 12 I. T. I. O., Chatkey 1, swc ne, show oil and gas, dr 4491 ft.

HUGHES COUNTY—T 9n, R 12e, Sec. 29, Canady et al, Kanard 1, swc nw nw, dr 650 ft.

POTTAWATOMIE COUNTY—T 8n, R 3e, Sec. 9, Cal Cul, Wilson 1, nw ne nw, dr 4750 ft. T 8n, R 4e, Sec. 3, Superior et al, Bayliss 1, swc nw, dr 850 ft. Sec. 9, Keister & Manning, Tibbes 1, nec sw, dr 3413 ft.

CLEVELAND COUNTY—T 7n, R 1w, Sec. 15, Sooner Oil Co., Vandeveer 1, ne nw sw, sd 3120 ft.

POTTAWATOMIE COUNTY—T 7n, R 3e, Sec. 15, Amerada & I. T. I. O., Vineyard 1, nw ne ne Hunton lime 4340-4654, dr 4684 ft, flow 275 bbls. Sec. 19, Frank Moore, Fundis 1, sec ne, lcn. T 6n, R 3e, Sec. 11, Shaffer & Margay, Adams 1, nec dr 4584 ft.

McCLAIN COUNTY—T 6n, R 3e, Sec. 36, Sikes et al, Cook 1, sw nw ne, rig.

SEMINOLE COUNTY—T 6n, R 6e, Sec. 8, E. L. Harris, Harjoche 1, se ne se, dr 2700 ft.

POTTAWATOMIE COUNTY—T 5n, R 5e, Sec. 4, I. T. I. O., Philpot 1, nwc dr 700 ft.

HUGHES COUNTY—T 5n, R 9e, Sec. 17, E. W. Whitney, Huddleston 1, sec sw, 3935 ft, sd. T 5n, R 11e, Sec. 15, J. J. Wright, Roberts 1, r.u.s.t.

PITTSBURG COUNTY—T 4n, R 12e, Sec. 32, Kerr & Key, Tall 1, c nw nw 8-inch at 2580 ft.

COAL COUNTY—T 2n, R 8e, Sec. 6, J. S. Cosden, Richardson 1, nw ne ne, dr 2959 ft, 2400 ft water. Sec. 7, McGinley & Sigler, Wiltsey 1, nw se se, sd 3016 ft. Sec. 10, E. W. Whitney, Miller 1, sec ne, sd 202 ft.

ROGER MILLS COUNTY—T 12n, R 24w, Sec. 23, Bucy & Stone, Williams 1, c sw, bldg rig. T 11n, R 26w, Sec. 4, L. C. Hivick Davis 1, c nw ne, sd 1850 ft.

CANADIAN COUNTY—T 10n, R 6w, Sec. 1, J. V. Bailey, Robinson 1, c ne nw, sd 150 ft.

BECKHAM COUNTY—T 8n, R 22w, Sec. 20, Carson et al, Denby 1, sw se ne, sd.

GREER COUNTY—T 6n, R 24w, Sec. 17, I. T. I. O. et al, Fee 1, c ne, running 12-inch 1902 ft.

CADDO COUNTY—T 6n, R 13w, Sec. 8, Abernathy & Brown, Horton 1, sec, skidded rig and spud. T 6n, R 10w, Sec. 26, English Drlg. Co., Gardner 1, nwc sw, dr 1600 ft. T 5n, R 17w, Sec. 2, N. P. McWhirter, Sherwood 1, swc ne, sd 1150 ft.

HARMON COUNTY—T 4n, R 26w, Sec. 8, S. M. Stauffer, Castleman 1, nwc se, sd 625 ft.

COMANCHE COUNTY—T 1s, R 11w, Sec. 17, Bridwell et al, Porter 1, nec se se nw, dr 2490 ft.

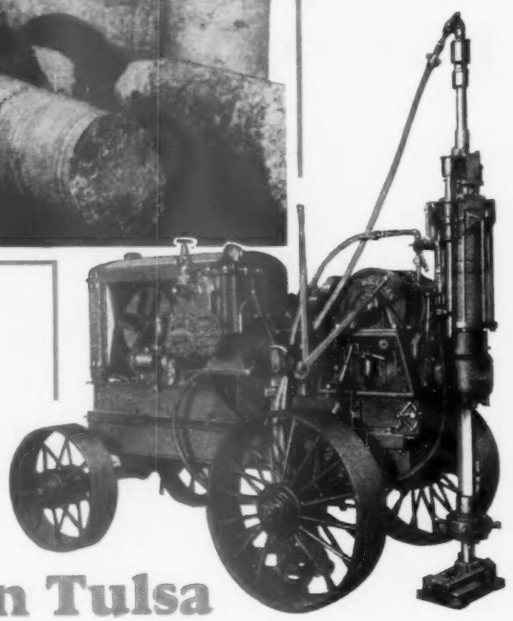
STEPHENS COUNTY—T 2s, R 4w, Sec. 21, Magnolia, Martin 1, swc, dr 3448 ft.

JEFFERSON COUNTY—T 7s, R 7w, Sec. 2, Superior, Nesmith 1, sw se se, dr 720 ft.

McCLAIN COUNTY—T 5n, R 3e, Sec. 16,

they test the structure of a township or two

for the price of a single wildcat



Above: Sullivan "21", with self-contained derrick, testing structure in Oklahoma. *At right:* Sullivan Diamond Drill Cores, and the new Sullivan "40" Drill.

New Sullivan structure drills will be on exhibit in Tulsa

OIL men at Tulsa will look with interest on the new Sullivan structure drills—which are already breaking records in the mid-continent field.

Many of these operators have tested the structure of an entire township or two with Sullivans, for the price of a single wildcat.

They know how Diamond Drill cores show the exact depth of the marker—how they define trends, determine sub-surface "highs", and spot favorable well locations at tremendous savings.

They are familiar with the earlier Sullivan Structure Drills, which have drilled as high as 6900 feet with 16 moves in one month.

Yet these men will recognize in the new Sullivan "21", and Sullivan "40", increased speed and power, greater compactness, and easier handling.

Sullivan "21" takes 1⅜-in. core to 500 feet, or 2-in. to 300 feet. Yet drill, pump, engine, steel frame and steel skids, weigh only 2600 lbs.

Sullivan "40" replaces the well-known "CN". It takes 2-in. core to 1200 feet, or 1⅜-in. core to 2200 feet. It has 18-in. hydraulic feed; its hoist picks up, holds, or lowers 3000 lbs. at a touch of the fingers; it is adapted to a Kelly, or any other equipment used by rotary drills; its engine is 50 per cent more powerful than that of old "CN". Yet the "40" weighs only 8300 lbs.

Free booklets on Sullivan Structure Drills, or on Sullivans for deep tests, or on Sullivans for drilling against heavy gas pressures, will be sent you gladly.

Why not write today?

One of the big Sullivan Diamond Drills was transported 700 miles into central India to take over a hole after another rig had reached its limit. The Diamond Drill finished the hole at 6007 feet.

SULLIVAN DIAMOND DRILLS

Sullivan Machinery Company

713 Wrigley Bldg., Chicago

Garber, Oklahoma Agent, in charge of Exhibit
GEORGE E. FAILING

Keep Tight

COLUMBIA LOCK NUTS keep all bolts and bolted parts tight.

No rattle or lost motion where they are used.

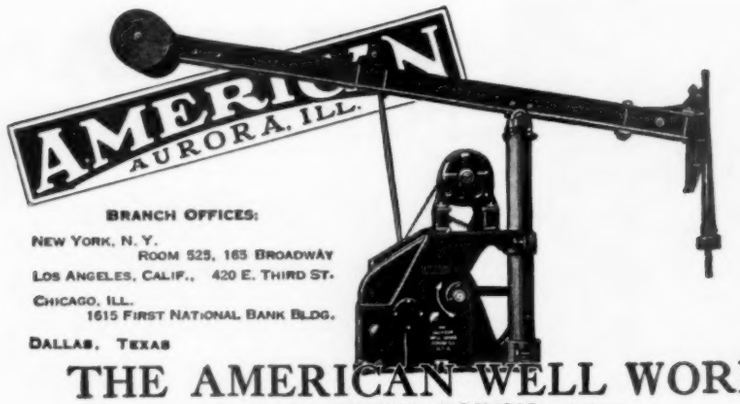
Let US know the SIZE of the **BOLT** that **BOTHERED** you yesterday and WE will send you a sample COLUMBIA LOCK NUT to fit it.

We ADVERTISE because WE want YOU to know that we have a **TROUBLE FIXER** worth while.

WE have made LOCK NUTS since 1900 and are making them NOW. GOOD RECORD—
Yes? ? ?

Columbia Nut and Bolt Co., Inc.

Bridgeport, Conn.



BRANCH OFFICES:
NEW YORK, N. Y.
ROOM 525, 165 BROADWAY
LOS ANGELES, CALIF., 420 E. THIRD ST.
CHICAGO, ILL.
1615 FIRST NATIONAL BANK BLDG.
DALLAS, TEXAS

THE AMERICAN WELL WORKS
General Offices AURORA, ILLINOIS and Factory

Homaokla Oil Co., Newton 1, se ne ne, hfw 2956-66 ft, rig blown down, rebldg.

JOHNSTON COUNTY—T 1s, R 7e, Sec. 29, Smith & Kinsley, Lane 1, sec nw, sd 2250 ft.

CARTER COUNTY—T 3s, R 4w, Sec. 23, Porter & Monahan, Robinson 1, sec nw, dr 2250 ft. T 4s, R 1e, Sec. 32, Leonard Woodruff, Zellner 1, ne ne se, hfw 2125-30 ft, 2130 ft dry and abn. T 4s, R 2e, Sec. 32, Tex-Okla. Drlg. Co., Anderson 1, se ne se, sd 420 ft.

MARSHALL COUNTY—T 5s, R 5e, Sec. 17, Jordan et al, Pen Mutual 1, nw ne se, sd 700 ft.

BRYAN COUNTY—T 9s, R 9e, Sec. 36, W. C. Endicott et al, Craige 1, c nw ne, sd dr 1830 ft.

WOODWARD COUNTY—T 23n, R 17w, Sec. 23, Prairie, Wilbur 1, nec, dr 5345 ft.

CLEVELAND COUNTY — T 10n, R 2w, Sec. 8, Prairie, Phillips & Slick, Sudik 1, c ne ne, waiting on cemt to set at 7172 ft.

KANSAS

STEPHENS COUNTY — Trees Oil Co.'s Candy 1, sw ne sw 3-35-38w, skidding rig.

SUMNER COUNTY— — Davidson et al's Strickland 1, sw se, 12-35-1w, rig. White & Cheney's Unknown 1, nec 11-34-2w, rig on ground.

STEPHENS COUNTY—W. Sidwell et al's Kelly 1, sw ne 16-34-38w, sd 1310 ft.

BARBER COUNTY—Skelly's Temple Ranch 1, sw ne 13-34-15w, cementing 8-inch 4045 ft.

HARPER COUNTY—Slick's Miller 1, sec 13-34-8w, dr 5016 ft.

SUMNER COUNTY—Mid-Continent's Clark 1, sec 31-34-3w, standardizing td 4470 ft. Morgan & Carey, Hawkins 1, sw se 9-34-1e, sd 2200 ft. Shell's Armstrong 1, nec 12-33-1e, dr 2175 ft.

BARBER COUNTY — Robertson et al's Powell 1, c se se, 11-32-10w, dr 2540 ft.

HARPER COUNTY—Slick's Thompson 1, nwc 10-32-5w, dr 4950 ft.

COWLEY COUNTY—J. E. Markey's Tatus 1, se sw 11-31-6e, sd 500 ft.

BARBER COUNTY—Allison & Fitzwilliams' Morrise 1, c nw se se 9-30-12w, ur 6-inch, td 4255 ft.

SEDGWICK COUNTY — Johnson & Marshall's Roy 1, c ne se nw 23-29-1w, sd 3860 ft, hfw. Lario Teachoiff 1, ne sw 27-19-1w, sd 3615 ft.

PRATT COUNTY—Jones & O'Haver Lunt 1, csw nw 16-28-14w, dr 4070 ft.

SEDGWICK COUNTY — Marland & Amerada's Sensroth 1, nwc 25-28-4w, fsh 2995 ft. D. P. Fleeger's Ottaway 1, sw nw 16-28-2w. Kellar & Lewis, Buckles 1, nw se 3-28-1w, rig. La Font et al's Carlton Bros. 1, c se se nw, 24-28-1e, sd 1685.

KIOWA COUNTY — British American's Woodward 1, nec 36-27-17w, dr 4980 ft.

KINGMAN COUNTY—White Eagle et al's Lorens 1, c ne sw se 25-27-5w, dr 1650 ft.

SEDGWICK COUNTY—C. B. Davis' Kinkead 1, nec 14-27-1e, dr 3020 ft. Lario's Calkins 1, sw se 7-27-2e, abn 3403 ft. E. W. Marland's Huggins 1, c se nw sw 30-27-2e, pumping 65 oil and 40 water.

GREENWOOD COUNTY — F. Konkay et al's Rock 1, ne nw ne 7-27-12e, spudded and sd.

RENO COUNTY—Wilson et al's McPheeters 1, c s½ nw 22-26-8w, ru. Austin Drlg. Co.'s Strickey 1, swc nw 12-26-5w, dr 3660 ft.

SEDGWICK COUNTY — Washabaugh's Harrison 1, c nw ne ne 3-26-2w, dr 3315 ft. Boyles et al's Sandusky 1, c nw ne se 34-26-1w, casing trouble, td 2625 ft. Burnett's Davidson 1, c nw nw sw 27-26-1e, running 6-inch td 3007 ft. Twist et al's Armstrong 1, ne nw 28-26-1e, spudded and abd.

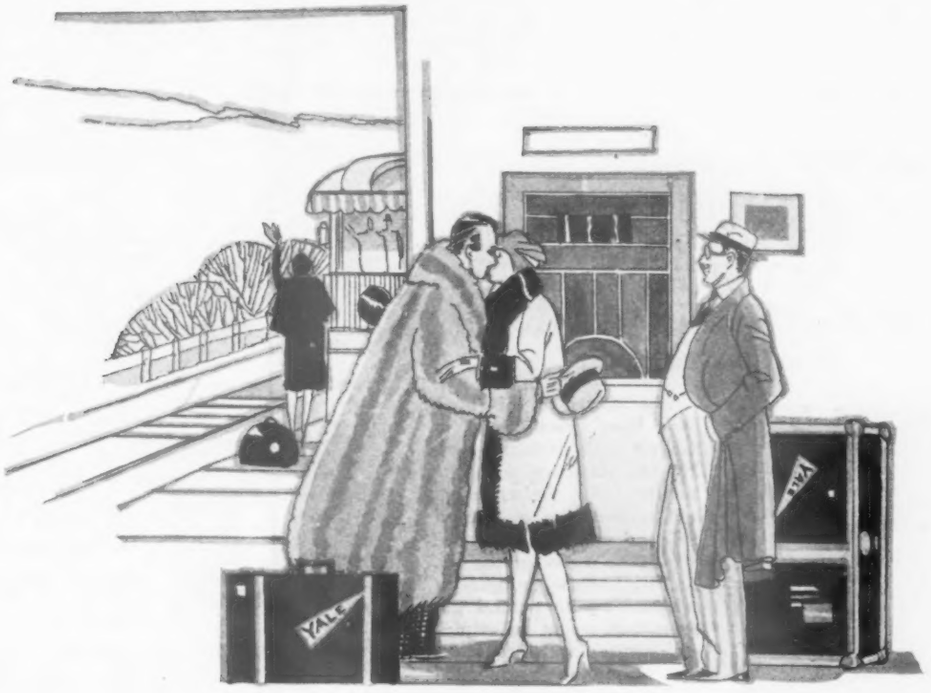
BUTLER COUNTY — Arkansas Fuel's Campbell 1, sec 9-28-3e, comp, 30 bbls., 2771 ft. Lario's Gordon 1, nec 15-26-3e, dr 3250 ft. Sinclair's Johnson 1, nec 16-26-3e, dr 1450 ft.

SEDGWICK COUNTY—Deering-Marshall's Dick 1, c sw 4-23-2w, dr 3430 ft. Twist et al's Joseph 1, 4-25-1w, sd 1980 ft.

BUTLER COUNTY—White Eagle's Bacholder 1, sw c, 17-25-3e, co, td 2845 ft. Travis et al's Harrison 1, sec 21-25-3e, setting casing 3075 ft. Millmack et al's Clearwater 1, swc 33-25-3e, dr 2430 ft.

RENO COUNTY—Skelly, Birkett 1, ne sw 30-24-7w, dr 3465 ft.

HARVEY COUNTY — Independent & Re-



When you tell a friend that you are sending your son to Yale, no further discussion is necessary.

When you tell an oil man that a well is Halliburton-cemented, the statement carries a similar degree of finality. To the seasoned operator nothing but the safest form of protection is thinkable.

HALLIBURTON

OIL WELL CEMENTING COMPANY

DUNCAN, OKLAHOMA

serve's Moulds 1, c ne 7-24-1w, casing trouble, td 2600 ft. Jolly & Ogg's Randall 1, nec 11-24-1w, sd 3444 ft. Payne et al's Ady 1, ne nw se 16-24-1e, dr 3250 ft. Walton's Neiman 1, c se sw 13-24-2e, dr 600 ft. Liggett's Regier 1, c se nw se 2-23-2w, sd 1610 ft. Rosenthal et al's Ingall's 1, c nw sw 24-33-3w, sd hfw 4035 ft. McCulloch's Prouty 1, nw sw 3-23-1w, fsh 2020 ft. Jolly & Ogg's Hupp 1, se ne 22-23-1w, sd 3220 ft. Margaret Gay Oil Co.'s Grouse 1, nw ne nw 29-23-1w, co 3012 ft.

HODGEMAN COUNTY — Phillips' Houseman 1, c nw ne 30-22-22w, dr 3330 ft.

RENO COUNTY—Witt et al's Olsen 1, se nw 14-22-6w, ru.

HARVEY COUNTY — Roth & Fauret's Bombrowsky 1, nwc 26-22-1e, dr 3340 ft.

PAWNEE COUNTY—F. C. Troupe's Lovett 1, cel ne ne 31-21-16w, sd 1560 ft.

McPHERSON COUNTY — Helmerich & Payne's Klassin 1, se ne ne 14-11-1w, ur 6-inch, td 3115 ft.

RICE COUNTY—Derby's Johnson 1, c nw ne se 24-20-6w, fsh 2300 ft.

McPHERSON COUNTY—Mid-Kansas Kuns 1, c se sw 11-20-5w, dr 2730 ft. Millmack's Decker 1, nwc 11-20-5w, rog. Slick-Pryor & Lockhart, Gratten 1, c ne nw nw 34-20-3w, sd 2555 ft. Lario's Diener 1, se sw 10-20-1w, sd 2115 ft.

MARION COUNTY—Empire's Reising 1, ne nw nw 34-20-2e, dr 1990 ft.

RUSH COUNTY — Danciger O&R Co.'s Pinonka 1, c ne sw ne 17-19-17w, fsh 3840 ft.

RICE COUNTY — Allison & Fitzwilliams-Poland 1, ne sw ne 36-19-8w, cellar dug. Millmack's Cain 1, se 29-19-7w, fsh 2180 ft.

McPHERSON COUNTY — Perry et al's Wade 1, c se 20-19-4w, dr 2370 ft. McPherson's Chindberg 1, c nw nw 18-19-2w, hfw 3585 ft, will plug back.

MARION COUNTY—Davis et al's Bartell 1, se ne 1-19-1e.

LANE COUNTY—Robinson et al's Dickerson 1, swc nw se 11-18-27w, 8-inch set 1320 ft.

NESS COUNTY—E. W. Marland's Moses 1, ne se 7-18-25w, setting 6-inch 3895 ft.

RUSH COUNTY—Sinclair's Seur 1, c se nw nw 8-18-17w, ur, td 3840 ft.

McPHERSON COUNTY—E. W. Marland's Swanson 1, c ne sw ne 36-18-4w, dr 3435 ft. McPherson County Gas Co.'s Rasmussen 1, swc 8-18-3w, dr 3030 ft. McPherson Oil Dev. Co.'s Sorenson 1, c se 23-18-2w, setting 10-inch 1690 ft.

RUSH COUNTY—Danciger's Swindt 1, c sw se sw 22-17-17w, dr 3850 ft. Central Commercial's Brock 1, nec sw sw 12-17-16w, spudded and sd.

BARTON COUNTY—Slick et al's Sweeney 1, sw ne 23-17-11w, spudded.

ELLSWORTH COUNTY — Tatlock et al's Sacken 1, c sw sw 25-17-9w, sd 675 ft for titles. Texas' Sherman 1, ne sw 16-17-18w, sd 2700 ft.

MARION COUNTY—White Eagle et al's Ucker 1, ne nw 24-17-2e, rog. American O. & R., Urie 1, sw nw 10-17-3e, dr 1775 ft.

LANE COUNTY — Blankenship Pet. Co.'s Shaeffer 1, nec ne 24-16-28w, spudded and sd.

SALINE COUNTY—Dixie's Thorstenberg 1, nw ne 10-16-3w, dr 2600 ft.

DICKINSON COUNTY—Hiatt & Durham, Went 1, nwc 17-16-2e, rig. Prarie's Morgan 1, nwc 26-16-3e, dry and abn 3150 ft. Milmack et al's Biehler 1, sw ne 28-16-4e, dry and abn, 3001 ft.

TREGO COUNTY—Prairie's Kutina 1, c ne sw ne 29-15-21w, dr 1130 ft.

ELLIS COUNTY—Rush Oil Co.'s Gatewood 1, nw 4-15-20w, fsh 2555 ft. Finney & Weimer, Freeman 1, nw se se 24-15-20w, spudded and sd.

RUSSELL COUNTY — Empire-Prairie's Becks 1, c se ne ne 23-15-14w, dr 3080 ft.

ELLSWORTH COUNTY — Templemen's Lanbangagen 1, c sw 20-15-5w, dr 2965 ft.

SALINE COUNTY — Austin's Olsen 1, c nw sw se 10-15-4w, dr 2005 ft.

ELLIS COUNTY—Streeter & Stearns Laiker 1, sw ne 26-13-20w, spudded and sd. Midwest's Berens 36, se nw 12-13-16w, dr 2330 ft.

SALINE COUNTY—Twin Moulds, Hughes 1, cw½ ne nw 20-13-4w, sd 625 ft.

WALLACE COUNTY—Menton & Entyre's Parker 1, c se nw sw 8-12-41w, rig.

TREGO COUNTY — Phillips Spitz 1, sec 24-12-25w, dr 1145 ft. Mid-Kansas' Ridgway 1, ne sw 28-12-21w, dr 2985 ft. Day's Guyler 1, c sw ne ne 36-12-21w, spudded and sd.

ELLIS COUNTY—Buren's et al's Fisher 1, nw se 4-11-20w, sd 950 ft.

OTTAWA COUNTY — Derby's Miemueller 1, c nw se 9-10-3e, dr 2100 ft.

JEFFERSON COUNTY—Wichita Oil Co.'s Simpson 1, nw sw sw 19-10-17e, sd.

ROOKS COUNTY — Burford & Brimm's Toxa 1, ne sw se 22-9-17w, spudded and sd. Krueger et al's Steis 1, c nw se sw 12-9-16w, spudded and sd.

GRAHAM COUNTY—Gulf Coast's Johnson 1, swc sw se 27-8-16w, dr 4093 ft.

SHERMAN COUNTY — A. L. Hansen et al's Murray 1, ne se nw, 22-7-40w, sd 3035 ft.

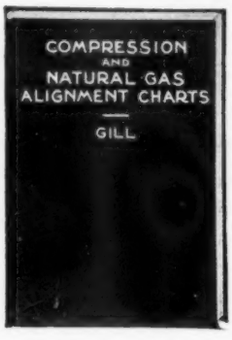
OSBORNE COUNTY — Phillip's Grieve 1, nw se ne 6-7-12w, ur 3100 ft.

RILEY COUNTY — Derby-Skow Bros.' Lundstrum 1, ne 32-7-5e, dr 2250 ft.

Just Off the Press!

COMPRESSION AND NATURAL GAS ALIGNMENT CHARTS

By THOMAS T. GILL



The charts in this book have been found useful in solving field problems arising in connection with the measurement, compression and transmission of natural gas, and in the manufacture of natural or casinghead gas. As many of the formulas in common use in natural gas operations are of an empirical nature, with constants that must be evaluated under varying conditions, it will be found that alignment charts are sufficiently accurate for nearly all purposes except for metering large quantities of gas, and here they serve as an excellent check on other calculations. Contains 41 charts, 65 problems. Price $3.50 Postpaid

Send check to the

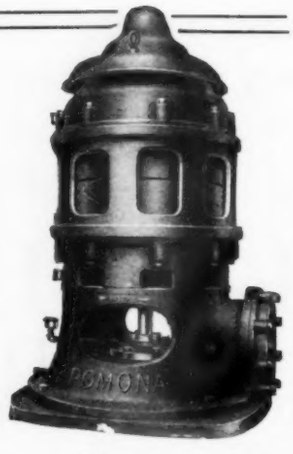
GULF PUBLISHING COMPANY
P. O. Box 1307
HOUSTON, - - - TEXAS

POMONA PUMPS — Oceans of Water

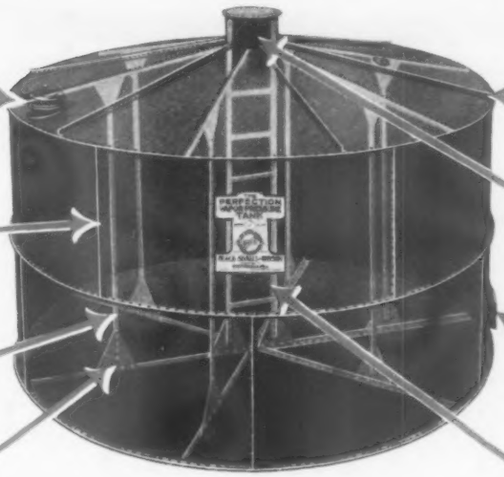
"Water Lubrication Has Brought forth the Highest Standard of Peformance"

POMONA engineers have spent years perfecting the elimination of oil contamination in water pumped from below the surface. That they have met with the highest degree of success is evidenced by the dependability and longevity of the water lubricated bearings used in POMONA PUMPS. By this method they have not only lengthened and livened the pump but have also increased their efficiency which is maintained continually and is frequently 20% higher.

Our engineers will gladly confer with you and work out most economical plan for your pumping problems.



Southern Engine & Pump Company
HOUSTON, TEXAS



Thief Hole Pressure Vacuum Valve

Flange Type Construction

Six Angle Iron Tie Rods

Heavy Tie Rod Gussets Bolted to Bottom Angles

Top Rafter Angle

Vapor Pressure Dome. Manhole

Large Size Cleanout Box

Inside Ladder

TANKS

B.S.&B. Perfection *Vapor Pressure*

Prevent Evaporation Loss! Maintain Well Head Gravity!

Here's a picture that tells a DOUBLE story! You can see both the outside and the inside of our tanks at a glance. Study the illustration, please. Note the flange type construction (there are four layers of metal plus our special packing to insure tanks being air, water, oil, and pressure tight.) Note the slanting roof that allows the tanks to "*breathe*" and The B. S. & B. Thief Hole Pressure Vacuum Valve—*The Tank's Watchdog.* On the inside you may see the angle iron tie rods, plus the ladder, all of which add to the strength of the tank.

The B. S. & B. Safety Valve operates at 16 ounce pressure and 4 ounce vacuum. It thus prevents the light fractions of oil from evaporating, thereby saving all your oil and maintaining its original gravity; it protects the tank from bursting under pressure; it keeps it from caving in as the sun goes down, or as the oil is drawn out. *And it works automatically!*

—*and service that's on the spot!*

Oilmen believe in, expect, demand and need ACTION, and B. S. & B. are able to give it to them. We manufacture all our tanks and keep a supply ever on hand, not only at our factory but at each branch, located THROUGHOUT the Mid-Continent and Rocky Mountain fields. There are 50 field stations at your beck and call! Tank crews are ever on the job and we do our own erection to insure accuracy, care and 100% efficiency. *From the factory to your lease in a few hours' time.*

May we give you some more INSIDE information about the B. S. & B. Perfection Tanks? We've a man near you now, and a catalog of the different sizes ready to mail. Address Dept. A-1.

EFFICIENT B S & B SERVICE DEPENDABLE

See Tanks on Display at our Booth

INTERNATIONAL PETROLEUM

X POSITION—Tulsa, Oct. 5-12th

Our Watchword QUICK SERVICE

Black Sivalls & Bryson INC.

BARTLESVILLE ~ OKLAHOMA

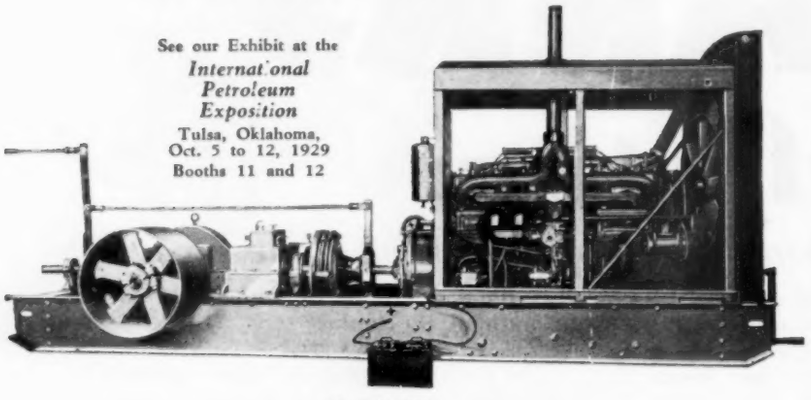
year after year

YOUNG ENGINES

are accomplishing BIGGER THINGS

YOU want a drilling engine that has been proved on the job. One built on the test of time and experience, not theory. Ask drillers you know who are using Young Engines what they think of them. Watch their Young Engines doing the job, and saving them money. Then you'll know why, year after year, Young Engines are accomplishing bigger things.

See our Exhibit at the
International Petroleum Exposition
Tulsa, Oklahoma,
Oct. 5 to 12, 1929
Booths 11 and 12



Branch Office
2507 Commerce St., Dallas, Texas

Representatives
Federal Supply & Machine Co., Winfield, Kansas
Branchland Supply Co., Huntington, W. Va.
J. F. George, Kane, Pa.
Pearson's Machine Shop, Oil City, Pa.
Levi Duncan, 1735 19th St., Parkersburg, W. Va.

Parts Stocked at
Dallas, Sweetwater, Winfield, Oil City, Bradford

Young Engine Corp., Canton, Ohio.

NATIONAL PETROLEUM ENGINEERING COMPANY
Engineers & Geologists
TULSA, OKLAHOMA

APPRAISALS
REPORTS-COMMERCIAL & TAX

SURVEYS
ESTIMATES OF OIL RESERVES

AN EXPERIENCED OIL FIELD ORGANIZATION

OSBORNE COUNTY—Mid-Kansas' Boyce 1, se nw 8-6-13w, dr 3085 ft.

RILEY COUNTY—Gray et al's Smith 1, ne se 30-6-6e, sd 1970 ft.

SMITH COUNTY — Phillips' Clydevale 1, se nw, 23-6-14w, dr 2750 ft.

SOUTHERN CALIFORNIA

Completions

Company, Well and Location	Initial Production Bbls.	Depth
BELVEDERE—		
W. H. Taylor (Prairie), Hellman 1..	*	5815
CLEARWATER—		
The Texas Co., Montana Land Co. 1, 8-4-12	*	5540

COMPTON—California Well Drlg. Co.'s De Amo 1, 4¾-in cas re-cmt 7555 ft, td 8500 ft.

FULLERTON — Shell Oil Co.'s Bastanchury 1, 23-3-10, dr sandy shale 5755 ft.

HAWTHORNE—Standard Oil Co.'s Freeman 1, dr shale and sand 7414 ft.

MONTEREY PARK—Monterey Park Pet. Co.'s Jepson 1, 25-1-12, sd 5280 ft.

NEWHALL—P. B. Anderson's 1, 1-3-16, cmt 8¼-in cas 550 ft, td 561 ft.

NEWPORT — Oilwell Engineering Co.'s Interstate 2, testing water shutoff, td 2800 ft.

PIRU—Coastline Oil Co.'s Mazie 1, 21-5-17, dr hard sandy shale 1233 ft.

POINT DUME — Marblehead Land Co.'s Ridge 1, 1-2-19, rigging up rotary.

POMONA—Pomona Oil Assn.'s 1, 8-27-28, 6¼-in cas cmt 1180 ft, td 1210 ft.

PUENTE—R. C. Rucker's Grazide 1, 8¼-in cas re-cmt 1600 ft, td 1200 ft. The State Co.'s Didier 1, new lcn.

RICHFIELD—Southwestern Oil Co.'s Day 1, testing casing, td 5775 ft. Superior's Schroeder 1, dr shale 575 ft; Bennett 1, rigging up rotary.

SEAL BEACH—Shell's Alamitos 1, bldg rig.

LOS ANGELES—Burlingham Pet. Corp.'s Hamm 1, fsh for liner 2190 ft.

TELEGRAPH CANYON—Union's Rimpau 1, dr hard shale 1288 ft.

TORRANCE—Archer Oil Co.'s Torrance 1, dr 700 ft.

VENICE—The Ohio Oil Co.'s Gun Club 1, dr sandy shale 4880 ft.

SAN BERNARDINO COUNTY—Urmi Co.'s 1, installing new rotary, td 590 ft.

NORTHERN CALIFORNIA

KERN COUNTY

BELRIDGE—Casa Mira Oil Co.'s Theta 1, 20-28-20, dr shale 1685 ft. Ozena Oil Co.'s 2, 27-29-21, dr sandy shale 1622 ft. K. C. Wallace's 1, 32-29-21, dr shale 2118 ft.

BENA—Elmer Oil Co.'s 1, 15-30-30, dr gray sand 3168 ft.

BUENA VISTA—Ohio Oil Co.'s Pyramid 1, 30-32-25, dr hard shale 5200 ft.

BUTTONWILLOW — Milham Exploration Co.'s Kern 6, 8-28-23, fsh for dr pipe 4510 ft.

EDISON—Symark Oil Co.'s 1, 24-29-29, dr shale 1900 ft. The Texas Co.'s Newman 1, 23-29-29, rigging up rotary.

GOULD HILLS—Elmer Oil Co.'s 1, 2-29-20, dr brown shale 3888 ft. J. H. Kennedy's 1, 5-29-21, sr 500 ft.

KERN RIVER—Section 26 Oil Co.'s 1, 26-28-28, co 1850 ft, td 1870 ft.

LERDO—Shell's An-1, 5-29-27, coring 4375 ft.

MIDWAY—The Texas Co.'s Gore 4, fsh 945 ft.

POSO CREEK—Agey Pet. Co.'s Agey 1, 28-27-27, 12½-in cas cmt 1050 ft. Bowles Oil Co.'s Buttram 1, 24-27-28, sd 1055 ft. Petroleum Securities Glide 17, 21-27-28, dr hard shale and sand 866 ft.

ROSEDALE—Elmer Oil Co.'s Houghton 1, 33-29-26, dr shale 4778 ft. General Petroleum's KCL-1, 13-29-26, rigging up rotary.

ROUND MOUNTAIN—Sunnyside Oil Co.'s Smith 1, 17-28-29, lcn.

SHAFTER—Elmer Oil Co.'s 1, 8-28-25, rigging up rotary.

SUNSET—Union's Fried 1, 8-11-23, dr hard shale 1178 ft.

TEMBLOR HILLS—Union's Williams 1, 22-32-23, 10¾-in cas cmt 1205 ft, td 2890 ft.

SANTA BARBARA COUNTY—

ARLIGHT—Standard's Sudden 1, 35-6-26, dr hard sand 1605 ft.

BETTERAVIA—Shell's Union-Sugar A-6, removing equipment, td 2150 ft.

TYLER BOILER TUBES

Inquiries Solicited

For All Oil Country Tubular Requirements

THE TYLER TUBE & PIPE CO.

Washington, Pa.

Texas Stock—Harrisburg Pipe and Pipe Bending Co. of Texas, Inc. Houston, Texas

Oklahoma Representative—Harrisburg Supply Co., Tulsa, Oklahoma

"Nobs"

For wells 2000 feet and under—a new soft, but tough, Composition Cup that has been tested and approved in the field. Made to fit and wear, it meets the most exacting requirements for—

Pumping Hot Liquid, Oil, Salt Water, Etc.

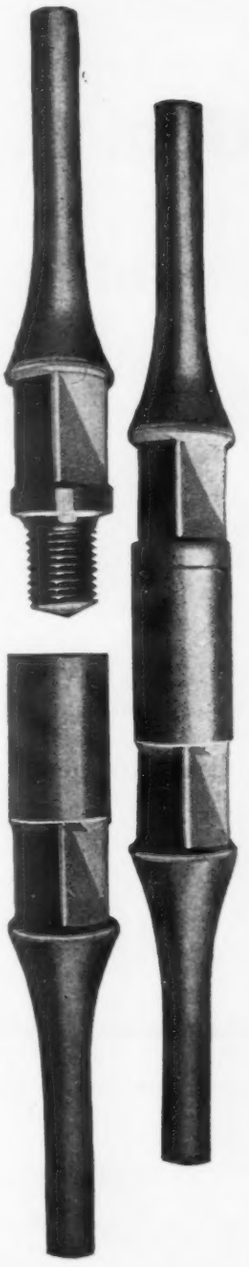
"Wears Like a Hog's Nose"

DRAGON MANUFACTURING CO.
MARIETTA, OHIO

BUFFALO SUCKER RODS

Give Unexcelled Service

Buffalo Sucker Rods have been so successful that they have established a reputation for service unexcelled by any other oil field equipment. This rod was developed through close co-operation with oil producers — developed to meet a specific need— and it does.



ORDER BUFFALO RODS NOW

Whether you are drilling in Venezuela, Pennsylvania or Texas, Buffalo Rods will do the job well, with fewer shut-downs and breaks.

Write for Catalogue

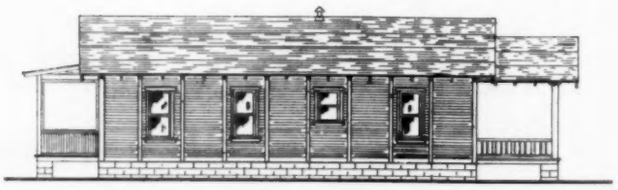
BUFFALO BOLT COMPANY

NORTH TONAWANDA, N. Y.

SALES OFFICES

Monadnock Bldg., Chicago, Illinois

General Motors Bldg., Detroit, Michigan



Geo. O. Hollow Co.

Portable Lease Houses

Home Builders

Storm Sheeted — Shingle Roof

Visitors at the

International Petroleum Exposition

are Extended a cordial Invitation to Inspect

our Plant while in Tulsa.

Office and Factory: Wheeling and Frisco Tracks Phone 7779

BUELL—Union's Buell 1, re-dr 1350 ft.

CARPENTERIA—Continental's 7, plugging back from 4460 ft.

CASMALIA—Keystone Oil Co.'s Paderewski 1, 33-10-34, dr shale 3316 ft. Wildcat Oil Co.'s Donovan 1, 20-10-35, dr hard shale 2150 ft.

CAT CANYON — Palmer Union Oil Co.'s Stendill 20, dr shale 6464 ft.

GIBRALTAR—Pacific Western's Dam 1, 14-5-27, dr 250 ft.

GOLETA—F. G. Anderson's Langham 1, 10-4-28, 8⅝-in cas cmt 4528 ft, td 4640 ft. Al Carry's Wright 1, 1-4-28, lcn. General Petroleum's More 1, shut in 4535 ft; More 2, lcn. Petroleum Securities' Bishop 1, dr hard shale 4915 ft. Standard's Edwards 3, dr 2500 ft. L. B. Tannehill's Storke 1 new lcn.

LOMPOC—Gaviota Oil Co.'s Maretti 1, 9-7-35, fsh for bit 1375 ft.

ORELLA—General Petroleum's Erburu 1, 5-4-30, making prod test 1350 ft. Shell's Rutherford 1, 36-5-31, surveying hole, td 6140 ft.

POINT CONCEPCION—Standard's Gerber 1, co 900 ft, td 2430 ft. Western Gulf's Hollister 2, 16-in cas cmt 503 ft.

SAN MARCOS — California Oil Properties' Fortine 1, 3-4-28, dr gray sand 1040 ft.

SANTA BARBARA—Channel Oil & Dev. Co.'s 1, 29-4-27, sd 6300 ft; Fellowship 1, 29-4-27- deepening from 2140 ft. Lincoln Drlg. Co.'s Medcliff 1, dr shale 1228 ft.

SUMMERLAND—Shell Oil Co.'s F-1, 18-4-25, bldg rig.

SURF—Keystone Pet. Corp.'s True Ranch 1, dr brown shale 2525 ft.

VENTURA COUNTY

CAMARILLO—Smith and Finch's 1, dr 1078 ft.

CASITAS—Miley Oil Co.'s Casitas 2-A, 12-3-24, dr hard sand 1800 ft.

FILLMORE—Frank Oil Co.'s 1, 35-4-20, dr hard sand and shale 2038 ft.

OJAI—Bishop Corp's Gilmore 1, 14-8-22, lcn. California-Ventura Oil Co.'s LaCrosse 1, testing 10¾-in water shutoff 3825 ft. Continental's Sulphur Mountain 3, dr hard brown shale 3315 ft. Rancho Rive Oil Co.'s 8, 10-5-28, dr hard sand 1316 ft.

PIRU—Bolsa Chica Oil Co.'s Snow 1-A, 4-4-18, dr shale 900 ft.

RINCON CREEK—Associated's Snowball 1, 19-4-24, bldg roads.

SANTA PAULA — San Pedro-Pt. Fermin Synd.'s Kellerman 1, sr 1175 ft. Wardman and Jones' Anlauf 1, 21-4-21, re-dr 1278 ft.

SATICOY—Standard's Citrus 5, 10-2-22, fsh for dr pipe 8144 ft.

SIMI—Shell's Marr 1, 31-3-17, swabbing water and trace of oil, td 3922 ft.

MISCELLANEOUS

FRESNO COUNTY—Garney Pet. Co.'s Braden 1, 19-23-15, dr 200 ft. Hornaday and Huggins' 1, 32-14-28, dr gray sand 4900 ft. Oceanside Oil Co.'s Thomas 4, 32-22-16, lcn. Penn-Sylvania-Western Oil Co.'s 1, 24-21-18, dr 580 ft. Petroleum Securities' Ladd 1, 28-20-16, running 9-in cas, td 6416 ft. Rio Grande's 1, 14-13-17, rig. Southmore Oil & Gas Co.'s Peterson 1, 7-21-21, co 4300 ft.

KINGS COUNTY—H. B. Porter's 1, 9-24-17, dr gray shale 1585 ft. J. E. O'Donnell's 1, 7-23-20, rigging up rotary. Son Oil & Gas Co.'s Peterson 1, 7-21-21, dr shale 4320 ft. Penn-Western Oil Co.'s 1, 24-21-18, dr sand and clay 575 ft.

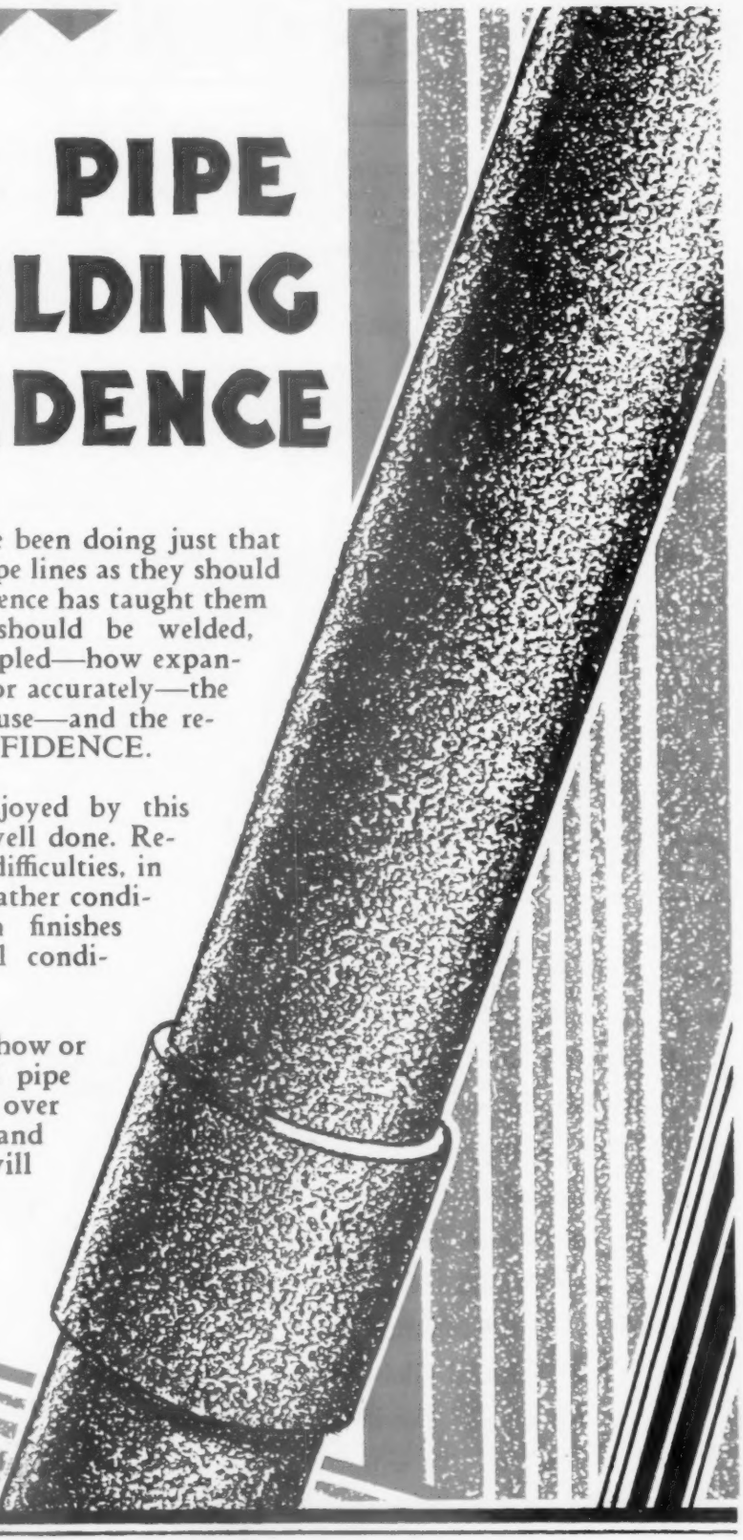
MENDOCINO COUNTY—Twin State Oil Co.'s Soldani 1, 14-12-17, dr hard sand 755 ft.

MONTEREY COUNTY — Standard's Piedmont 1, 23-22-7, dr shale 782 ft. Union's Paige 1, 8-22-8, cmt 11¾-in cas 2030 ft. Shell's Dudley 1, 15-22-9, coring 3878 ft. Producers Oil Co.'s 1, 30-21-9, bldg rig.

SAN LUIS OBISPO COUNTY—Kent and McDonald's 1, 3-32-22, dr 150 ft. Midwest Oil Co.'s 1, 34-31-15, dr on fsh 2210 ft. Panorama Oil Co.'s Vishu 1, 7-31-21, fsh for cas 4010 ft. Paso Robles Oil Co.'s Emerick 1, 34-27-15, dr shale 3426 ft. Pismo Dome Oil Co.'s Pricco 2-A, 5-31-13, dr 150 ft. San Luis Synd.'s 1, 29-31-13, co 3130 ft. Texas Pacific Coal & Oil Co.'s 1, 25-32-14, co 3100 ft. Union's 1, 12-32-14, dr brown shale 4316 ft; Russ 1, 34-32-15, lcn.

TULARE COUNTY—Big Four Oil Co.'s 1, 29-23-27, m on iron 4330 ft. Roy White's 1, 8-23-26, dr 776 ft.

LAYING PIPE *and* BUILDING CONFIDENCE



Truman-Smith have been doing just that for years. Installing pipe lines as they should be installed—as experience has taught them—how every joint should be welded, screwed or Dresser coupled—how expansion should be cared for accurately—the proper equipment to use—and the result has BUILT CONFIDENCE.

CONFIDENCE enjoyed by this firm is due to work well done. Regardless of unforseen difficulties, in the face of adverse weather conditions Truman-Smith finishes their contracts in A-1 condition, on time.

Regardless of when, how or where you may need pipe laid, turn the problem over to this reliable firm and your confidence too will be rightfully placed.

The TRUMAN-SMITH CONST. Co.

EL DORADO, KANSAS.

PERMITS GRANTED FOR NEW WELLS

WEEKLY COMPARISON OF NEW WELLS

Following is a condensed table giving a comparison of permits or locations made for new wells during the past year in Kansas, Oklahoma, Arkansas, Louisiana, Texas, California and the Mountain States:

	Week ending Sept. 28	Previous Week	Total this Month	Total this Year	This Week 1928	This Month 1928	1928 Year Total
Arkansas	4	..	11	120	4	14	331
California	25	17	59	963	33	226	1,207
Louisiana	26	17	81	656	14	54	680
Kansas	22	12	81	839	30	114	1,032
Oklahoma	121	88	343	2,670	78	336	3,744
Texas	172	168	653	6,597	199	856	8,297
Total	370	302	1,227	11,845	358	1,594	15,291

ARKANSAS

OUACHITA COUNTY—Standard Oil Co. of La., Shreveport, Geo. Powell 8, 200 ft s, 220 SKELLY OIL CETAOINUNUNUNUNUN ft w nec, 34-15-15. Skelly Oil Co., El Dorado, Ark., N. N. Wood 3, 1520 ft s, 1120 ft w nec, 34-15-15. Skelly Oil Co., M. A. Langley 1, 1570 ft n, 250 ft e swc, 35-15-15. Arkansas Fuel Oil Co., Shreveport, M. J. Avera 1, 200 ft n, 200 ft e swc, 35-15-15.

OKLAHOMA

CARTER COUNTY—Carter, Dixon 8, se sw nw, 3-1s-3w. Carter, Dixon 9, se ne nw, 30-1s-3w. Ven Mex, Putman 1, ne nw sw, 30-1s-3w.

COTTON COUNTY—Shasta, Patterson 1, se nw, 1-2s-10w.

CREEK COUNTY—Phillips et al, Houston 2, nw ne ne, 20-19-9e (owdd). William Sherry and Carter, Harmon 2, c sw ne, 28-19-9e. Magnolia, Vance 21, (cwdd) cnl nw ne, 7-18-7e. Jackson and Wise, Grayson 1, ne se se, 20-18-9e. Pawnee, Johnson 5, (owdd), c se se, 14-17-8e. Reiter-Foster, Little Head 1, sw se, 17-17-10e. Magnolia, Talmase 2, (owdd), cwl ne nw, 3-16-7e. E. L. Kistler, Bear 1a, ne se sw, 16-14-10e.

KAY COUNTY—DeCamp, Sharp 2, c ne ne, 25-28-1w.

KIOWA COUNTY—W. C. Adams, Hamilton 1, nw sw, 2-6n-17w.

LINCOLN COUNTY—T. B. Slick, Massie 1, ne se, 18-14-4e.

LOGAN COUNTY—Shell, Storey 4, se ne sw, 30-19-4w.

MUSKOGEE COUNTY—Western Drlg. & Equipment, Townlot 1, se nw sw nw, 35-15-18e. C. A. Lovelace, Townlot 1, c nw sw nw, 35-15-18e. Denton and Marshall, Grayson 1, se ne nw, 12-15-15e. P. O. Miller, Jackson 2, cel ne nw, 8-13-16e. McMahon and Bower, Griffith 1, nw se ne, 23-13-18e. M. S. Mussellem, Carver 2, csl ne ne, 4-13-19e.

NOBLE COUNTY—I. T. I. O., Abbers 1 nw, 3-20-1w.

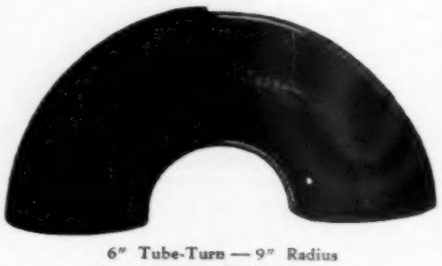
OKFUSKEE COUNTY — Champlin Ref. Washington 7, se ne se, 15-11-11e. Mid-Continent, Grayson 1, ne sw, 31-11-11e.

OKLAHOMA COUNTY—Wirt Franklin et al, Lowery 4, c e2 e2 nw, 12-113w. Wirt Franklin et al, Trosper Park 9, ne se nw, 12-11-3w. Wirt Franklin et al, Trosper Park 10, nw se 12-11-3w. Wirt Franklin et al, Trosper Park 11 sw se se, 12-11-3w. Indian Territory Illuminating et al, Brokaw 1, nw ne ne, 13-11-3w. Indian Territory Illuminating et al, Brokaw 2 sw se ne, 13-11-3w; Brokaw 3, ne, 13-11-3w Trosper 7, ne nw sw, 13-11-3w; Trosper 8, nw sw, 13-11-3w; Trosper 9, nw sw sw, 13-11-3w T. B. Slick, Zecherle, ne, 13-11-3w. Indian Territory Illuminating et al, Pasedena Heights 1 nw se se, 14-11-3w; Unsell 2 et al, nw ne ne 23-113w; Fortson 3, ne se ne, 24-11-3w; Fortson 3, et al, se ne ne, 24-11-3w; Farley 2, sw nw nw 19-11-2w; Fuzzell 2, nw sw nw, 19-11-2w. T. B. Slick et al, Hussman 1, sw nw sw, 29-11-2w Shell, Petty 6, ne nw ne, 30-11-2w. Shell, Petty 7, se nw ne, 30-11-2w. Prairie and T. B. Slick, Hiddleston 6, se sw se, 19-11-2w. Prairie and T. B. Slick, Hiddleston 7, ne sw se, 19-11-2w.

OKMULGEE COUNTY — Kirkland & Son, Price 5, cwl ne nw, 20-15-13e. Mechlin and Berlin, Chatman, cwl sw nw, 13-14-14e. Tiger Mountain, Fowler 13, (owdd), sw se se, 35-14-14e. E. J. Lambert, Freeman 5, se se nw, 7-13-15e.

OSAGE COUNTY—R. L. Berlin, 11, sw ne sw, 20-29-9e. Indian Territory Illuminating, 420 ne sw sw ne, 34-29-10e. Peters, 7, nw se se 22-27-11e. Tidal, 7, sw nw se, 20-24-9e. Indian Territory Illuminating, 418, ne sw se, 20-23-8e A. G. Oliphant, 4, sw ne nw, 6-23-9e. Silurian

Largest deposit of Forged Steel Products in the South may be seen at our Houston warehouse, consisting of Standard, Extra Heavy and No. 8 Ludlow Companion Blind and Reducing Flanges, fittings ⅛" to 4", Edward Globe, Angle, Check and Needle Valves ⅛" to 2" with Monel and Stainless Steel trimmings.



6" Tube-Turn — 9" Radius
Note Uniform Wall Thickness

Cast Steel Fittings, Series 15 and 30, sizes 2" to 8" inclusive.

RIVETS — Write for the most complete stock list in the Mid-Continent.

Machine Bolts — All sizes to accommodate Flanges in Stock.

TUBE-TURNS of 180° 90°, and 45° angles, from 1" to 16" inclusive in Standard and Extra Heavy Thickness.

MAINTENANCE ENGINEERING CORPORATION

1400 Conti Street HOUSTON, TEXAS Preston 2274-5

B. B. Bros.
ALL STEEL HAND HOIST
TRADE MARK
SEATTLE, U.S.A.

Versatile

An unlimited field of users are covered by the B. B. Bros. Hand Hoist, making it standard equipment in the oil field. Moving machinery . . . erecting . . . construction . . . performing pipe line work . . . any type of job that requires convenient hoisting or pulling by hand power can be safely and economically handled by this machine.

Weight 110 lbs.

Capacity FIVE TON STRAIGHT LINE

Size 16x17x13" High

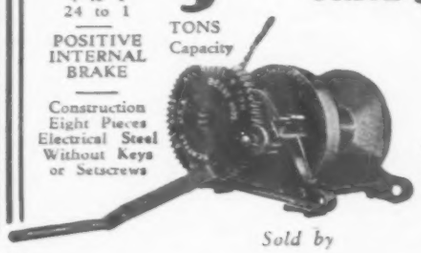
Two Speeds 4 to 1 24 to 1

POSITIVE INTERNAL BRAKE

Construction Eight Pieces Electrical Steel Without Keys or Setscrews

5 TONS Capacity

PRICE $80



Steel Tail Hold Yoke $4 Extra. Truck Attachment Plate, $10 Extra

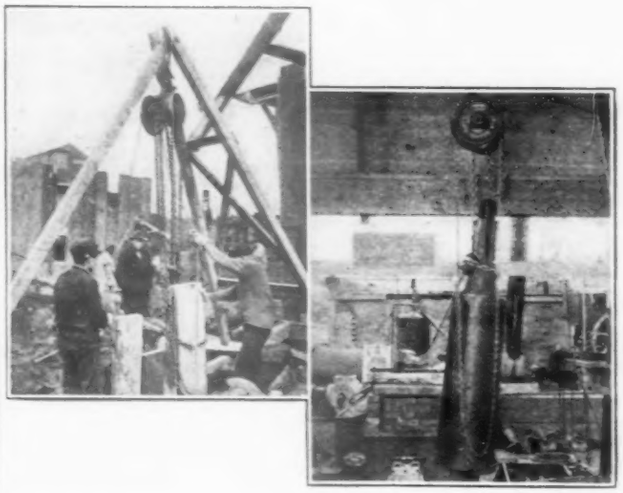
Sold by

THE NATIONAL SUPPLY COMPANIES

TRADE YALE MARK

Ball-Bearing Spur-Geared CHAIN BLOCKS

Inside and Out



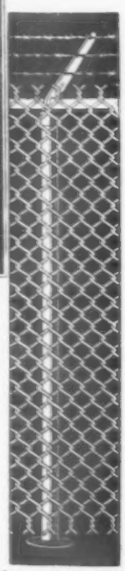
YALE Ball-Bearing Spur-Geared Chain Blocks safely serve all industries, and constitute the most efficient method of hoisting by hand. Their ruggedness permits them to do unfailing work outside in rough weather, as well as inside under sheltered roofs.

Heat treated driving pinion; accurately ground for fit . . . . hardened and ground chrome vanadium ball races for the load carrying bearings . . . . accurately meshed gears and properly designed lubrication to prevent wear . . . . uniform fit of die-shaped links in smoothly cast steel load sheave . . . . perfect co-ordination of complete unit. All parts manufactured in the Yale plant under the Yale system of rigid inspection and test insures a high and maintained efficiency.

THE YALE & TOWNE MFG. CO., STAMFORD, CONN., U. S. A.

YALE Hoisting and Conveying Systems

YALE MARKED IS YALE MADE



When fence problems are once settled with Cyclone Fence, they need not be discussed in "new equipment" sessions again for years. Cyclone Fence is made of copper-steel and heavily galvanized for utmost durability. Leading oil companies standardize on Cyclone. Dependable erection service available everywhere. We take complete responsibility. Write nearest office.

Cyclone Chain Link Fence is now furnished with H-Column Line Posts — proved by tests the strongest fence posts made. Set in new reinforced concrete foundations—no cracking from frost action.

All chain link fence is not Cyclone. This name plate identifies the genuine Cyclone Fence.

TEXAS CYCLONE FENCE COMPANY
Subsidiary of United States Steel Corporation
Works and Offices: Fort Worth
Direct Factory Branches and Warehouses: Houston, Dallas, Tulsa
Also Sales Offices: New Orleans, Shreveport

Cyclone Fence

(C) C. F. Co. 1929

56, sw nw ne nw, 17-23-12e. Barnsdall et al, 5, ne se se, 22-22-11e.

PAWNEE COUNTY—O. O. Owens, Bentley 1, se ne, 36-20-6e.

PAYNE COUNTY—Magnolia, Grove 2, se nw, 27-19-4e (owdd). Transcontinental, Lincoln 2, sw se, 4-18-5e. Pure, Kennedy 1, ne nw, 9-18-5e.

PONTOTOC COUNTY—Independent, Norris 2, se ne nw, 19-5-5e. Homaokla, Shields, ne sw se, 33-5-8e. Empire, Norris 4, ne se nw, 19-5-5e. Empire, Bumpers 1, sw ne ne, 19-5-5e. American, Roberts 4, sw se, 19-5-5e. Benedum & Trees, Northam 1, sw se, 30-5-5e. Benedum & Trees, Stafford 1, ne sw nw, 31-5-5e.

POTTAWATOMIE COUNTY — Obermeyer et al, Townlot 1, sw, 18-6-4e. Magnolia, Billington 1, sw, 30 9-5e. Twin State, Brown 1, sw nw ne, 22-7-4e. Independent, and Derby, Curly 2, sw se nw, 22-7-4e. Independent and Darby, Curly 1, (owdd), nw se nw, 22-7-4e. Shell, Hines 2, se sw nw, 22-7-4e. Independent and Darby, Pappan 3, sw se se, 16-7-4e. Healdton, Townlot 1, nw sw nw, 8-9-5e. Obermeyer et al, Townlot 1, ne se nw, 8-9-5e. Healdton, Townlot 1, ne nw sw nw, 8-9-5e. Commerce Development, Barrett 1, nw ne se nw, 8-9-5e. A. B. Kitney, Townlot 1, ne sw nw, 8-9-5e.

SEMINOLE COUNTY—Minnehoma, Noe 5, nw se nw, 17-9-6e. The Texas, Magruder 1, sw nw, 19-9-6e. Shell, Hopper 2, ne sw ne, 19-9-6e. Shell, Hopper 3, ne se ne, 19-9-6e. Wrightsman, Green 4, se ne ne, 19-9-6e. Gypsy, Maley 2, sw nw nw, 20-9-6e. Burke-Greis, Jones 3, ne sw sw, 17-9-6e. Carter, Harber 2, sw se, 7-9-6e. Sinclair, Nichols 6, se ne nw, 19-9-6e. Sinclair, Nichols 5, sw nw ne, 19-9-6e. The Texas, Magruder 2, ne se nw, 19-9-6e. Tidal and Interocean, Scott 1, ne sw, 19-9-6e. McCulloch 1, nw se, 20-9-6e. Sinclair, Nevins 1, nw ne nw, 5-9-6e. Burke-Greis, Wentz 2, sw ne sw, 17-9-6e. Gypsy, Maley 3, ne nw nw, 20-9-6e. Shell, Hopper 4, nw sw ne, 19-9-6e. Tidal 1, nw ne nw, 20-9-6e. Continental and Shaffer, Harris 7, nw ne sw, 4-7-7e. Blackwell, Baker 1a, sw nw se, 11-7-6e. Carter, Eleck 2, nw sw se, 23-7-6e. Carter, Spellman 2, nw sw sw, 7-6-8e. Barnsdall, Sunday 1, se, 25-5-5e. Producers & Refiners, Jefferson 1, ne nw se, 19-9-6e. Producers & Refiners, Jefferson 2, nw se, 19-9-6e. The Prairie and T. B. Slick, Tiger 1, ne nw ne, 8-7-7e.

STEPHENS COUNTY—Pace et al, Vass 1, se nw sw, 23-2s-7w. Pace et al, Horton 1, se sw se, 26-2s-7w. Pace et al, Bristowe 4, ne nw nw sw, 18-2s-7w. Sykes et al, Broadbent 1, sw se nw, 16-1s-8w.

TULSA COUNTY—Gilbertson et al, Fields 1a, se nw se, 21-16-14e. Highland, Mason 5, csl ne ne, 16-16-14e. Bessinger et al, Fox 1, sw nw ne se, 14-16-13e. Tidal, Agent 2, se sw sw ne, 12-16-13e. Superior, Johnson 2, se ne nw, 18-19-12e.

WAGONER COUNTY—Mitchell, Bruner 2, ne nw ne, 2-16-16e. Knox and Shouse, Barnett 2a, csl ne se, 12-16-15e.

CALIFORNIA

BELRIDGE—The Ohio Oil Co., 32, 30-28-21.

ELWOOD—L. B. Tannehill, 1, 24-4-29.

KERN COUNTY—The Texas Co., Newman 1, 23-29-28. General Pet. Corp., K.C.L. 13-1, 13-29-26.

KERN RIVER—Pan-American Pet. Co., 14, 22-28-27; 16, 22-28-27. General Pet. Corp., 10, 14-28-27.

LONG BEACH—Petroleum Securities Co., Graham 1, 29-4-12; Wallow 1, 19-4-12; Young 3, 19-4-12. Continental Oil Co., Modoc 2, 19-4-12.

LOS ANGELES COUNTY—The State Co., Richfield-Puente 1, 5-2-10.

MIDWAY—C. C. M. Oil Co., 85, 8-32-23.

MT. POSO—The Texas Co., Alta Vedder 3, 4-28-27.

RICHFIELD—Continental Oil Co., Chapman 28, 29-39.

SANTA BARBARA COUNTY — Lincoln Drlg Co., 1, 30-4-27.

ROUND MOUNTAIN—Shell Oil Co., Jewett 8, 29-28-27.

SANTA FE SPRINGS—Associated Oil Co., Dallugge 8, 31-2-11; Dallugge 9, 31-2-11. Geo. F. Getty, S. F. S. 45, 6-3-11.

SUNSET—California-Western Oil Co., Vaventrite 4, 17-11-23. Birch-Royer, 2, 7-11-23. Union Oil Co., Son 1, 8-11-23.

VENTURA—Associated Oil Co., McGonigle 3-A, 23-3-23.

KANSAS

BUTLER COUNTY—Alladin, Kugler 1, sw ne, 24-27-3e. Empire, Cranston 12, se ne se, 22-27-5e.

COWLEY COUNTY — Lewis Production, Hill 1, se sw nw, 20-31-6e. Slick, Pryor and Lockhart, Ratts 1, nw ne se, 25-30-5e. Trees, Brubaker 1, cel se nw, 12-34-6e.

ELK COUNTY—Union Gas and Clay, Ware 1, c ne ne, 5-31-9e.

GREENWOOD COUNTY — West Coast Leasing, Souders 11, se ne sw, 31-25-13e. Roth Faurot, Martindale 1, se ne, 30-23-10e. Walton, Gassoway 1, se sw, 6-24-13e. Sheedy et al, Dalton 1, se nw nw, 5-24-13e. Empire, Hoggett 4, sw nw se nw, 9-25-13e. Akeman, Baker et al, Young 3, cnl se ne, 22-22-13e. Simmons and Rhodes, Patterson 2, nw sw sw, 22-23-11e.

HARPER COUNTY—Beeler et al, Bear 1, c ne, 21-31-6w.

LYON COUNTY—Sheedy et al, Hughes 3, ne nw sw, 19-21-10e.

MARION COUNTY—Alladin, Rampel 2, nw se se, 12-19-2e.

RUSH COUNTY—Danciger et al, Nevi 1, nw, 26-17-17w.

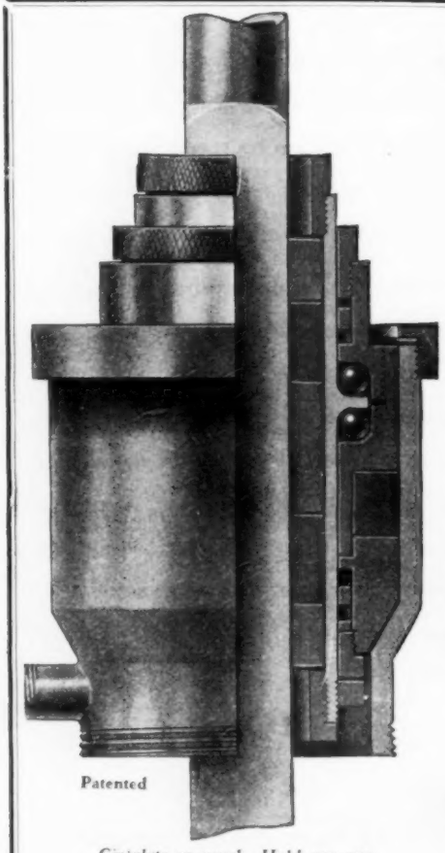
SEDGWICK COUNTY—White Eagle, Robbins 3, sw ne se, 20-28-1e. Bu Vi Bar et al, Wright "A" 1, se sw ne, 12-26-1w. Bu Vi Bar et al, Wright 9 ne nw se, 12-26-1w.

WOODSON COUNTY—Curtis et al, Shrangher 1, ne nw ne, 22-25-14e. Harper, Reed 2, sw ne, 28-23-14e.

TEXAS

ARCHER COUNTY—Mrs. H. B. Wallace, Wichita Falls, Fee 160, 21, S 6, S. P. Ry sur, 1492 ft from w and 482 ft from s line sw¼. L. G. Bradstreet Co., Petroleum Bldg., Fort Worth, Texas. L. A. Snider, 131, 1D, J. Saunders sur, 150 ft from s and e lines. N. D. Goldsmith et al, Olney, C. F. Kunkel, 11, 2, B4, BBB&C sur, 150 ft from n and e lines.

ANDERSON COUNTY—Humble, Houston,



Patented

Circulate as usual. Hold any gas pressure you're likely to meet.

REINIE'S is the only blowout preventer on the market that ROTATES *with* the DRILL PIPE

DON'T LET YOUR WELL GO WILD—IT MIGHT CATCH FIRE

Bernard H. Scott, well known California petroleum engineer, thus describes the Reinie blowout preventer in The Oil Weekly of Aug. 9:

"... With this type of casing control installed, the danger of an unexpected blowout between the well casing and the outside of the drill pipe would be very slight. In the event that it should prove difficult, temporarily, to maintain the necessary fluid head due to loss of circulation returns, the lateral ports can be held closed until the plastic sealing mixture is pumped into the well through the drill pipe. After this has been done, the control valves can be manipulated so as to cause the release of the accumulated gas or oil in the casing above the mud fluid column, maintaining sufficient back pressure on the upward-moving column of mud-laden fluid in the casing to register additional flow resistance in increased poundage at the mud pump gauge over and above the normal pump pressure recorded while drilling with an unbroken column of mud fluid up to the mouth of well. In this way the mud pump pressure will be the greater factor exerted. This would avoid any lowering of casing pressure and resultant expansion through atomization of the mud fluid by the action of gas being permitted to escape from the productive zone and churning the circulating stream at the bottom of the hole.

"A unique advantage incorporated in the design of this type of casing control, is that the drill pipe can be rotated, without disturbing the packing seal."

Literature on Request

C. A. (REINIE) REINHARD

12420 SO. MENLO AVE. Telephone THornwall 0033 LOS ANGELES, CALIF.

A *proven fact*

for over NINE YEARS

TAUBMAN QUALITY, QUANTITY AND SERVICE AT A REASONABLE PRICE

NO promises—actual faithful performance, whether you want to buy or sell from a carload to a trainload.

An active Branch in every important field, equipped to thread from the smallest to the largest size pipe with A. P. I. or standard threads.

Over a half million dollars devoted exclusively to the Used Pipe Department and unlimited source of new pipe, seamless or lapweld out of Memphis and the Mills, Pittsburgh Steel Products Company and Central Tube Company of Pittsburgh.

As a TAUBMAN customer, you are assured of a square deal and prompt service.

TAUBMAN SUPPLY CORPORATION

We Are Mill Distributors for Central Tubular Products

General Offices: Midco Building,
TULSA, OKLAHOMA

District Sales Office: Fort Worth, Texas

Branch Pipe Threading Shops and Yards: TULSA, CAPITAL HILL, MAUD, AND SEMINOLE, OKLAHOMA; WINK, PYOTE AND BORGER, TEXAS; WICHITA HEIGHTS, KANSAS.

J. H. Gouger, 22, 2, J. Trimmer sur, 150 ft from n and w lines; T. H. Jones, 98, A3, D. Roberts sur, 150 ft from e and 450 ft from s line.

BROWN COUNTY—Young Bros. & Alexander, Inc., Fort Worth, W. H. Kilgore, 240, 12, S 152, H. McClure sur, 300 ft ne of No. 11; A. Hickman, 168, 19, S 148, B.B.B.&C. sur, 300 ft sw of No. 14 (Callahan County). L. C. Riordan, Brownwood, J. R. Riordan, 42, 2, C. B. Jennings sur, 300 ft from s and e lines; C. H. Heath, 150, 1, W. S. Armstrong sur, 150 ft from n and w lines. Gilman & McMurray, Cisco, R. Hickman, 188, 7, T. Benson sur, 300 ft n of No. 2. C. O. Moore Oil Corp., Rising Star, N. E. Munselle, 80, 4, W. Ahrenbeck sur, 300 ft s of No. 3. Texas Co., Wichita Falls, S. C. Kesler, 60, 8, S 42, H.T.&B. sur, 300 ft se of No. 7, sw¼. Paramount Oil Royalties, Inc., Brownwood, A. W. Shore, 30, 1, No. 627, C. B. Banister sur, 150 ft from s and w lines. J. M. Murray et al, Santa Anna, W. B. White, 80, 1, No. 353, G. B. Jennings sur, 150 ft from w and 450 ft from s line.

BASTROP COUNTY—Sun Oil Co., Dallas, F. Anderson, 100, 1, M. Green sur, 298 ft from nw and 935 ft from ne line.

CALLAHAN COUNTY — J. W. Ducker, Cisco, R. D. Williams, 60, 1, S 139, Univ. Lands sur, 1088 ft from n and 850 ft from e line sec. Young Bros. & Alexander, Inc., Fort Worth, A. Hickman, 168, 19, S 148, B.B.B.&C. sur, 300 ft sw of No. 14. C. O. Moore Oil Corp., Rising Star, J. W. McDaniel, 41, 6, B 56, C.C.S.L. sur, 300 ft e of No. 5; Dickey Oil Co., Cisco, R. D. Williams, 120, 1D, S 25, D.&D. Asy. sur, 450 ft from n and 150 ft from e line s½ sw¼. P. S. Groginski, Fort Worth, E. Debogory, 50, 1, No. 777, W. G. Anderson sur, 150 ft from s and w lines.

COLEMAN COUNTY—White Eagle, Abilene, J. P. Morris, 106, 12, No. 722, Wm. Webber sur, 300 ft w of No. 8; 16, 299 ft w of No. 12. C. M. Joines, Brownwood, S. C. Stewardson, 270, 1, S 96, J. Stewardson sur, 1829 ft from n and 1484 ft from e line sec. Anzac Oil Corp. et al, Coleman, Thole, 57, 1, S 751, B 12, Martinez sur, 700 ft from w and 1350 ft from s line White Eagle, Abilene, J. P. Morris, 107, 24, No. 722, Wm. Webber sur, 300 ft w of No. 20; 20, west of No. 16; 15, 300 ft w of No. 11; 3, 498 ft n of No. 4; 11, 400 ft w of No. 7. Permisn Oil Co. & Gibson & Johnson, Abilene, J. J. Crowder, 20, 2, J. H. Wood sur, 358 ft s of No. 1. C. B. Holmes et al, Baird, A. Hickman, 250, 1, S 2, S. Morris sur, 150 ft from n and 450 ft from e line. E. L. Smith Oil Co., Inc., Mexia, J. J. Crowder, 50, 1, S 483, J. H. Wood sur, 150 ft from n and w lines. Tower & McKanna, Inc., Wichita Falls, J. C. Slack, 50, 1, No. 256, R. Merritt sur, 150 ft from s and e lines; J. J. Crowder, 40, 5, No. 483, J. Wood sur, 366 ft s of No. 5.

CULBERSON COUNTY — Grisham-Hunter Corp., Abilene, J. C. Hunter, 94, 1, S 14, B 59, T.&P. sur, 330 ft from s and w lines of sec.

CHAMBERS COUNTY—Texas Co., Houston, Lawrence, 1, H. Griffith sur, 41 ft from nw and 25 ft from ne line; Wilburn, 39, 2, H. Griffith sur, 70 ft from n and 330 ft from e line; 3, 169 ft from n and 430 ft from e line. Pure Oil Co., Fort Worth, W. F. Mayes, 6, E. H. R. Wallis sur, 500 ft e of No. 5; 4, 500 ft n of No. 1; 8, 500 ft w of No. 4; 7, 500 ft w of No. 1; 5, 500 ft s of No. 1.

CRANE COUNTY — Church & Weekley, Fort Worth, Duell, 80, 4, S 39, B 30, Univ. sur, ne cor of w½ of sw¼.

CLAY COUNTY — A. W. Phillips, Fort Worth, W. E. Callie, 80, 2, B 43, O.C.S.L. sur, center of se¼ of Blk. 43. Kimmell & Woofter, Wichita Falls, Amer. Refg., 30, 2, B 59, Bacon sur, 300 ft e of No. 1.

CALDWELL COUNTY — Buchanan & Danciger, San Antonio, W. T. Cude, 21, 1, W. M. Spillers sur, 450 ft from nw and 150 ft from sw line.

COOKE COUNTY—Rathke Oil Co., Wichita Falls, J. O. Aldridge, 36, 1, R. Ekey sur, 150 ft from n and w lines.

CARSON COUNTY—Empire, Wichita Falls, Fields, 640, 1, S 13, B 7, I.&G.N. sur, 1650 ft from n and e lines of sec.

DUVAL COUNTY—Magnolia Pet. Co., Dallas, W. S. Harper, 240, 2, No. 332, 660 ft from n and e lines; Hahl, 190, 8, Sec. 250, Rosita sur, south central part of lease.

EASTLAND COUNTY—Hoffman & Page et al, Eastland, I. B. Foster, 40, B3, S 27, B 2, H.&G.C. sur, 340 ft n of No. B2. Root Drilling Co., Eastland, J. H. Staples, 98, 1, S 88, B 4, H.&T.C. sur, 400 ft from s and w lines. Anna Belle Oil Co., Cisco, T. E. Murrell, 20, 1, S 29, B 2, H.&T.C. sur, 150 ft from n and e lines. W. E. Davis, Eastland, J. R. Webb, 40, 1, S 12, B 2, H.&T.C. sur, ne corner.

FORT BEND COUNTY—Sun Oil Co., Dallas, E. C. Farmer, 125, 9, J. Scott sur, 209 ft s of No. 8.

FISHER COUNTY — Cranfill & Reynolds, Cisco, N. G. Barrett, 160, 1, S 199, B 1, B.B.B. & C. sur, 330 ft from s and w lines of ne¼.

GRAY COUNTY—Texas Co., Wichita Falls, G. H. Saunders, 296, 14, J. G. Eustis sur, 937 ft from s and 169 ft from e line; M. A. Shaw, 320, 4, S 5, B 1 A, C.H.&B. sur, 2588 ft from s and 2840 ft from w line of e½; A. Chapman, B, 160, B3, S 50, B 25, H.&G.N. sur, 330 ft from n and w lines of se¼.

GUADALUPE COUNTY — T. H. Poole, Cotulla, J. Priest, 25, 1, G. DeWitt sur, 150 ft from n and w lines.

GLASSCOCK COUNTY — Landreth Prod. Corp., Fort Worth, A. L. Houston, 640, 1, S 29, B 35, T.&P. sur, 2310 ft from e and 330 ft from s line sec. Sun Oil Co., Dallas, H. Phillips, 640, 3, S 14, B 33, T.&P. sur, 2317 ft from e and 330 ft from s line. California Co., Midland, C. F. Jones, 320, 1, S 25, B 33, T.&P. sur, 330 ft from n and e lines of sec.

HARRIS COUNTY—Humble, Houston, J. K. Oats, 22, 1 No. 6, H.E.&W.T. sur, 50 ft from n and e lines. Rio Bravo Oil Co., Houston, J. J. Settegast, A, 102, 16, J. Kopman sur, 300 ft from s and 625 ft from e corner. Texas Co., Houston, G. W. Dunman, 25, 1, W. W. Williams sur, 50 ft from n and e lines.

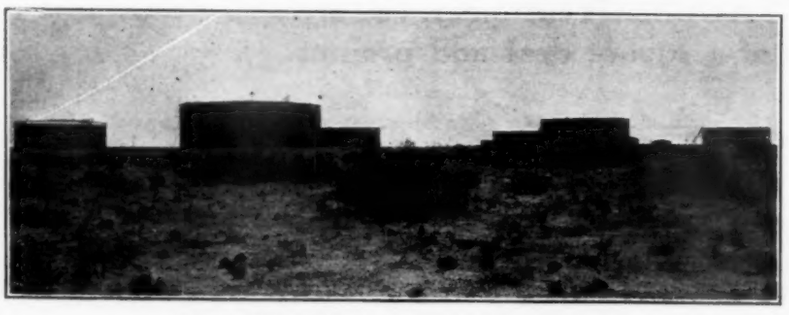
HOWARD COUNTY — Schermerhorn Oil Co. & Winton Co., Big Spring, Kloh, 240, 1, S 13, B 23, T.&P. sur, 330 ft from n and e lines.

HARDIN COUNTY — Lake View Oil Co., Sour Lake, Minor, 22, 7, S. Jackson sur, 100 ft from s and 250 ft from w line. East Batson Oil Co., Batson, Richardson, 3, 8, B.B.B.&C. sur, 33 ft from n and 36 ft from e line.

IRION COUNTY—H. H. Tucker, San Antonio, J. Lindley, 114, 1, S 1160½, B 1, H.&T.C. sur, 150 ft from e and 900 ft from s line survey. Irion Oil Co., Dallas, F. Tankersley, 173, 2, S

Field riveted

Tanks

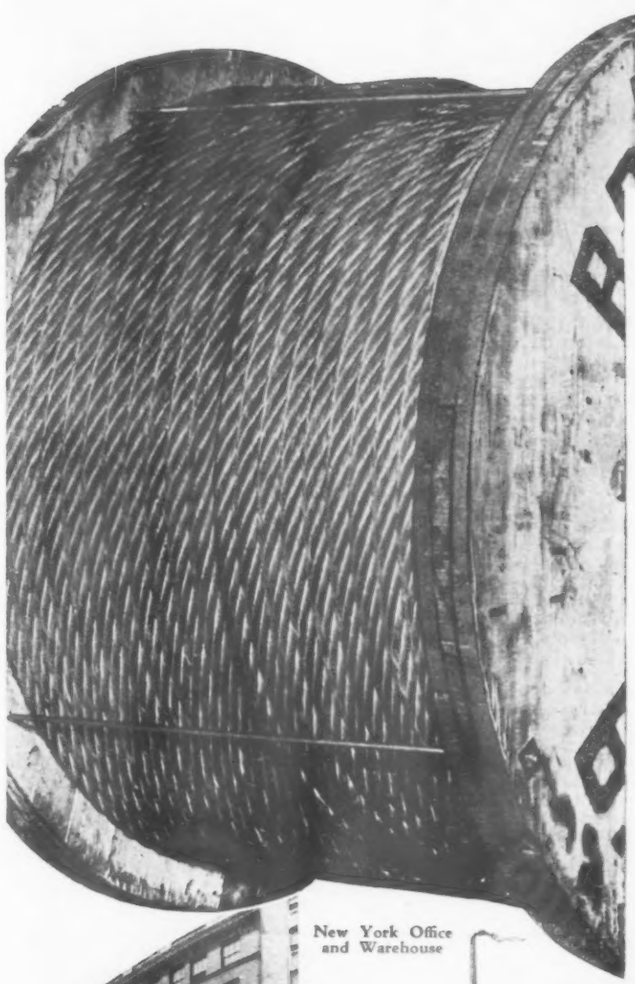


Texon Oil and Land Company, Pyote, Texas
Six Pittsburgh-Des Moines Standard 80,000 Barrel Tanks

Pittsburgh-Des Moines standard field riveted tanks are carried in stock ready for immediate shipment. Write our nearest office for prices on any type of tanks.

Pittsburgh-Des Moines Steel Company

87 Neville Island, Pittsburgh, Pa. — NEW YORK
1299 Praetorian Bldg., Dallas, Texas — SAN FRANCISCO
SEATTLE
CHICAGO
989 Tuttle St., Des Moines, Ia. — ATLANTA



Visit us at the International Petroleum Exposition, Oct. 5 to 12; Booth 80, Oklahoma Building.

IT'S A MIGHTY BIG "OUTFIT"

which provides the petroleum industry all over the world with that vitally important part of its equipment—dependable wire line.

Two great productive factories in St. Louis and Seattle and commodious warehouses in New York and Portland, Oregon, keep supply houses everywhere well stocked with B & B Cable Tool Drilling Lines, Sand Lines and Pumping Lines, and the famous Yellow Strand Rotary Lines, laid up to suit conditions in each field. You get what you want *when you want it.*

Broderick & Bascom began making wire rope in 1876, were pioneers in designing special drilling cables—pliable, easy running lines that spell speed and economy in the cable tool field; and invincible Yellow Strand Rotary Lines, supremely elastic, non-crushing, and of uniform strength.

All B & B Lines are made of wire drawn to our own specifications and tested four ways before being made into rope. Machinery of exclusive design. Workmen of ripe experience. Result: Good, uniform, dependable lines.

If you don't know name of nearest B & B Distributor, ask us. Write for catalog No. 41

BRODERICK & BASCOM ROPE COMPANY
St. Louis

Factories: St. Louis and Seattle
Warehouses: New York and Portland, Ore.

New York Office and Warehouse

St. Louis Factory

New St. Louis Office

Portland, Oregon Warehouse

Seattle Factory

BRODERICK & BASCOM DRILLING LINES

NR695

4, H. M. Wallace sur, 2660 ft from w and 600 ft from s line.

JIM HOGG COUNTY—Magnolia Pet. Co., Dallas, N. Hinnant, 497, 1, S 30, B.S.&F. sur, 600 ft from n and w lines.

JACK COUNTY — R. H. Manning, Fort Worth, Brentmore, 26, 5, J. W. Williams sur, 150 ft s of center of n line.

JEFFERSON COUNTY—Yount-Lee Oil Co., Beaumont, Gladys, 97, J. A. Veatch sur, Blk. 97.

KENT COUNTY — White & Smith, Big Spring, G. A. Peersley, 1, S 8, B H, H.T.&B. sur, 442 ft from s and 586 ft from e line sw¼ of se¼.

LIBERTY COUNTY — Neches Oil Co., Beaumont, Turner, 6, 2, 500 ft from e and 35 ft from s line. Yount-Lee Oil Co., Beaumont, Mitchell, 50, 18, M. G. White sur, 50 ft from n and w lines. Sun Oil Co., Beaumont, A. Mitchell, 100, 51, M. G. White sur, 150 ft s of No. 59; 50, 200 ft s of No. 48.

LEE COUNTY—D. H. Byrd, Dallas, W. M. Bostic, 1276, 1, Wm. Johnson sur, 490 ft from s and 655 ft from w line.

MILAM COUNTY—Service O. & G. Co., Beaumont, J. B. Muldrow, 106, 1, L. Taylor sur, se corner.

MEDINA COUNTY—E. T. Peters et al, San Antonio, R. J. Noonan, 1, S 52, J. N. Alsbury sur, 950 ft from e and 400 ft from s line.

McCULLOCH COUNTY—Canyon O. & G. Co., Cross Plains, J. P. Barton, 40, 1, S 1055, J. Blike sur, 1867 ft from n and 200 ft from e line.

NAVARRO COUNTY—Pure Oil Co., Fort Worth, G. W. Martin, 36, 1, E. Friar sur, core test, no location.

NOLAN COUNTY—Gibson & Johnson, Abilene, S. P. Boyd, 320, 1, S 42, B 20, T.&P. sur, 1320 ft from n and 1980 ft from e line of sec.

NUECES COUNTY—R. & G. Corp. et al, Laredo, E. Allen, 500, 1, S 6, B 8, R. Peters sur, 200 ft from n and w lines of Blk 8.

ORANGE COUNTY—Gulf Prod. Co., Houston, H. J. Stark, 154, 1, N. Block sur, 4372 ft from s and 150 ft from e line.

PECOS COUNTY—California Co., Midland, M. A. Smith, 640, 4, S 37, B 194, G.C.&S.F. sur, 1018 ft from n and 330 ft from e line of sec. Dixie Oil Co., Inc., McCamey, N. McKenzie, 640, 1, S 15, B 604, G.C.&S.F. sur, center of ne¼ of sw¼. Merrick & Bristow, Ardmore, Okla., Neville, 400, 1, S 42, B 12, H.&G.N. sur, 330 ft from w and 1650 ft from s line. Cosden Oil Co., Fort Worth, J. A. McDonald, 80, 1, S 1, H.E.&W.T. sur, 330 ft from n and e lines.

REFUGIO COUNTY—Independent O. & G. Co., Midland, Reilly, 32, 1, L 15, B 3, Refugio sur, 330 ft from s and e lines of Lot 15. Texas Gas Co., Houston, J. L. Empson, 1¼, 1, Blk. 117, Refugio sur, center of Blk. 117.

RUSK COUNTY — H. M. Harrell et al, Shreveport, La., E. B. Alford, 110, 1, E. B. Warren sur, se corner.

SAN PATRICIO COUNTY — Spencer & Rhoads, Fort Worth, H. L. Steele, 104, 2, L 6, Roos sur, 200 ft from s and w lines.

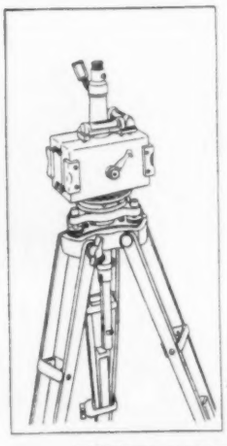
SHACKLEFORD COUNTY—E. A. Engel, Albany, J. B. Matthews, 60, 5, S 29, E.T. Ry. sur, 325 ft n of No. 3. Scott & Walker, Albany, L. C. Huskey, 320, 19, 568, T.E.&L. sur, 300 ft se of No. 13. L. B. Tannehill, Albany, W. P. Newell, 409, 25, S 11, B 11, T.&P. sur, 315 ft se of No. 24. L. E. Lasseter, Fort Worth, W. T. Gurney, 40, 1, S 4, Bayland Asy. sur, 150 ft from n and w lines. Hofmeier Pet. Co., Fort Worth, W. G. Trice, 40, 2, 817, T.E.&L. sur, 150 ft from s and e lines. Texas Consolidated Oil Co., Breckenridge, Raynolds, 80, 3B, S 23, B 11, T.&P. sur, 300 ft e of No. 2B. Union Oil & Mining Co., Tulsa, Okla., L. C. Huskey, 320, 42, S 548, T.E.&L. sur, 2250 ft from n and 300 ft from w line. M. R. Kisser et al, Albany, J. Matthews, 160, 1, S 42, Blind Asy. sur, 150 ft from s and e line sw¼ of nw¼. Mid-Texas O. & G. Co., Abilene, G. R. Davis, 80, 1, S 2, Blk. 13, T.&P. sur, center of sw¼ of ne¼. Big State Oil Corp., Dallas, Russ-Webb, 427, 12, S 17, B 11, T.&P. sur, 1050 ft from w and 450 ft from s line sec; 11, 1950 ft from w and 1050 ft from s line sec. Cranfill & Reynolds, Cisco, R. J. Moberly, 4B, S 48, B 11, T.&P. sur, west central part of se¼. Carruth & Vandiver, Fort Worth, J. E. McLendon, 60, 1, S 11, Univ. Lands sur. R. H. Manning, Fort Worth, W. P. Newell, 40, C1, S 12, B 12, T.&P. sur, 450 ft from n and 150 ft from e line se¼ of ne¼. Gilman & McMurray, Cisco, J. B. Matthews, 101, 5, S 2, E.T. Ry. sur, 300 ft e of No. 2. Roy Sharrock et al, Moran, R. E. Burns, 40, 1, S 68, L.A.L. sur, 150 ft from w and 550 ft from s line sw¼ of se¼. Roeser & Pendleton & Humble O. & R. Co., Albany, R. M. Titus, C1, N. Williams sur, 175 ft n of center of south line. T. G. Shaw, Fort Worth, J. Rice, 535, 28, S 20, Bayland Asy. sur, 300 ft se of No. 11. P. S. Kendrick et al, Albany, W. H. Stephens, 160, 8, S 6, Blind Asy. sur, 300 ft e of No. 7. Geo. Callihan, Albany, J. H. Nail, 80, 1, S 132, E.T. Ry. sur, east central part of lease. Roeser & Pendleton & Phillips Pet. Corp., Albany, J. L. Godwin, 80, B1, 385, T.E.&L. sur, 150 ft from n and w lines of n¼. Gibson & Johnson, Abilene, J. J. Simpson, 719, 1, S 13, B 3, H.&T.C. sur, 2391 ft from n and 1938 ft from e line sec. Loggie & Arendt Oil Co., Albany, J. Blach, 320, 5C, 389, T.E.&L. sur, 1500 ft from nw and 1716 ft from sw line sec; 6C, 300 ft e of No. 5C; J. Blach, 320, 26, 507, T.E.&L. sur, 450 ft from ne and se lines of e¼. Roeser & Pendleton, Albany, J. H. Nail, 160, 1, S 119, E.T. Ry. sur, 220 ft from s and e lines of nw¼. S. B. Owens, Inc., Brownwood, J. H. Nail, 80, 1, S 98, E.T. Ry. sur, 150 ft from n and w lines of w½ of sw¼. Oyster & Rife, Abilene, G. R. Davis, 40, 1, S 5, B 13, T.&P. sur, center of se¼ of ne¼. Big State Oil Corp., Dallas, A. Spear, 140, 1, S 1, Blind Asy. sur, 150 ft from s and w lines of sw¼.

SHELBY COUNTY—Gulf Prod. Co., Houston, Pickering, 2, G. H. Patterson sur, nw of se line.

THROCKMORTON COUNTY—Less Combest et al, Mineral Wells, B. S. Walker, 80, 1, W. Bramlett No. 4 sur, 2657 ft from n and 3379 ft from w line; B. S. Walker, 80, 1, W. Bramlett No. 5 sur, 2502 ft from n and 376 ft from w line of sur; B. S. Walker, 80, 1, J. McCoy sur, 154 ft from s and 175 ft from e line of sur.

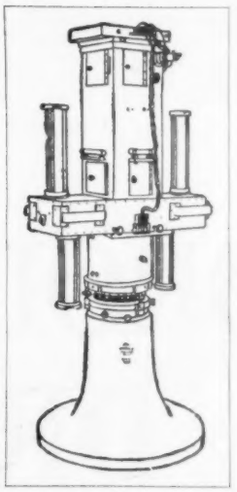
UPTON COUNTY — Pure Oil Co., Fort Worth, E. S. Hughes, 300, 2, Wm. Teel No. 4 sur, 354 ft e of No. 6.

WICHITA COUNTY—C. A. Everts et al,



ASKANIA INSTRUMENTS

FOR GEOPHYSICAL EXPLORATION



THEY MEET THE DEMANDS OF MODERN PRACTISE FOR PRECISION INSTRUMENTS

EFFICIENT AND SIMPLE — COMBINING ACCURACY WITH ECONOMY

Torsion Balances — Magnetometers — Seismographs
Earth Inductors and other Geophysical Equipment.

AMERICAN ASKANIA CORP.

1024 Marine Bank Building
HOUSTON, TEXAS

For Forty Years

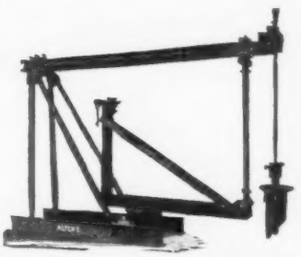
we have been watching our products in actual service and constantly producing modern improved equipment to meet the demands of the oil fields.

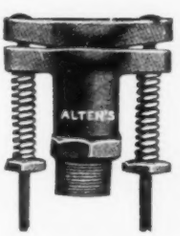
Ask Your Supply House

ALTEN'S

Foundry & Machine Works

Established 1889 LANCASTER, OHIO





OVER ONE MILLION GALLONS
Without a Leak
KONSET
Reg. U. S. Pat. Office

Water Pressure finds the weakest spot. Be safe from shoe leaks and channeling, Konset your cement. Get more oil, less treating. Waterproofs, accelerates, bonds and hardens.

SLUSH-MIX
Patent Pending

Liquid Paste or Powder. Wall Sealer and Mud Lubricator.

FISSURSEAL

Expands and Congeals. Recovers Lost Circulation. Prevents Caving and Shale Heaving. Preparations for Water Shut-Off and Reconditioning Wells.

HEF-T

The Improved Mud Heavier. Will control any gas pressure. Walls up hole in any formation. The Heaviest Compound *and then some.* Hef-T combines in one product what competitors claim for two. Save the price of one.

KLEEN-A-WELL
Patented

Cleans Tubing and Rods. Removes Paraffine, Asphaltum, Gypsum or Salt. Increases Production.

SULCO
BOTTOM HOLE COMPOUND

A Special Waterproof Bonding Formula. For Bottom Hole Cementing, Leaky Casing Shoe, etc.

SULCO PRODUCTS

Include many other time and labor savers for oil field operations, as well as technical paints and varnishes.

The SULLIVAN Co.

Memphis, U. S. A. Montreal, Canada
Houston Tulsa Los Angeles New York

Export Office
30 Church St., New York

Wichita Falls, S. P. Gibson, 20, 1, B 302, Wag. Col. sur, 150 ft from s and w lines. T. F. Hunter, Wichita Falls, J. Waggoner, A35, S 8, G.H.&H. sur, 285 ft from w and 275 ft from s line. Panhandle Refg. Co., Wichita Falls, T. L. Burnett, 80, A10, S 6, G. P. Meade sur, 300 ft n of No. 9. D. M. Ross, Wichita Falls, S. Mitchell, 50, 17, P. Castleman sur, 300 ft e of No. 14. J. L. Swanner, Wichita Falls, Williams-Parker, 160, 1, B 15, P.P.C.S.L. sur, 150 ft from w and 1060 ft from s line. Holbrook & Woods, Wichita Falls, Kemp & Kempner, 32, B 82, W.V.F.L. sur, 150 ft from n and e lines. J. E. Keller, Iowa Park, T. J. Waggoner, 40, 3, M. A. Willis sur, 450 ft from w and 820 ft from s line. Ryan Consolidated Pet. Corp., Tulsa, Okla., G. Nance, 764, 110, S. O. Fowler sur, 1700 ft from w and 2315 ft from s line. Golding & Cochran, Wichita Falls, W. T. Waggoner, B, 40, 1, B 30, H. George sur, 150 ft from w and 450 ft from s line. McCarty Oil Co., Wichita Falls, S. Mitchell, 4, P. Castleman sur, 300 ft w of No. 8. Mid-Continent Holding Corp., Wichita Falls, Wilkerson, 70, 4, B 3, McCool sur, 450 ft from n and 150 ft from w line. Rubsam & Hunter et al, Wichita Falls, W. D. McClure, 40, 12, B 5, G.C.&S.F. sur, 50 ft n of No. 11; 11, 50 ft e of No. 10. American Refg. Properties, Wichita Falls, G. W. Cooper, 7, 1, L. Meadows sur, 750 ft from w and 150 ft from s line. Riner & Omohundro, Wichita Falls, D. R. Pace, 40, 23, R. J. Scott sur, 750 ft from n and w lines. P. P. Langford, Jr., Wichita Falls, J. F. Bobo, 11, 1, S 33, H.&G.N. sur, 150 ft from s and w lines.

WILBARGER COUNTY — Waggoner Refg. Co., Electra, W. T. Waggoner, J, 40, 11, S 25, B 4, H.&T.C. sur, 50 ft sw of No. 8 nw¼ of ne¼. Staley, Waynne & Co., Wichita Falls, W. T. Waggoner, 80, G14, S 32, B 4, H.&T.C. sur, 50 ft e of No. 12 w½ of se¼; W. T. Waggoner, 40, E4, S 25, B 4, H.&T.C. sur, 50 ft se of No. 2 sw¼ of ne¼. Cosden Oil Co., Fort Worth, W. T. Waggoner, 160, 4D, S 35, B 2, H.&T.C. sur, 750 ft from e and 150 ft from n line. Golding & Cochran, Wichita Falls, W. T. Waggoner, M, 70, 1, S 4, B 5, H.&T.C. sur, se corner. Fain-McGaha Oil Corp., Wichita Falls, W. T. Waggoner, W, 100, 18, S 32, B 4, H.&T.C. sur, 225 ft from w and 300 ft from s line. Cosden Oil Co., Fort Worth, W. T. Waggoner, 160, 3D, S 35, B 2, H.&T.C. sur, 300 ft w of No. 2 se¼ of ne¼. Empire Gas & Fuel Co., Wichita Falls, W. T. Waggoner, 160, 15A, S 32, B 4, H.&T.C. sur, 499 ft from s and 205 ft from e line nw¼; 14A, 762 ft from e and 255 ft from s line nw¼ of nw¼; 15A, 762 ft from e and 715 ft from n line se¼ of nw¼. Davis Oil Corp., Vernon, Waggoner, 36, 2, S 35, B 2, H.&T.C. sur, 150 ft from s and e lines. Waggoner Refg. Co., Electra, W. T. Waggoner, J, 40, 10, S 25, B 4, H.&T.C. sur, 50 ft se of No. 6 nw¼ of ne¼. Empire, Wichita Falls, W. T. Waggoner, 160, 23B, S 32, B 4, H.&T.C. sur, 382 ft from s and 215 ft from w line nw¼ sw¼; W. T. Waggoner, 160, 17A, S 32, B 4, H.&T.C. sur, 205 ft from e and 874 ft from s line nw¼. Consolidated Oil Co., Wichita Falls, W. T. Waggoner, S, 320, 1, S 37, B 4, H.&T.C. sur, 150 ft w of center of e line. C. P. Burton, Wichita Falls, W. T. Waggoner, 80, 16, S 40, M.E.P.&P. sur, 450 ft s of No. 4.

WARD COUNTY — Shell Pet. Corp., McCamey, Sloane, 320, 1, S 16, B 5, H.&T.C. sur, 220 ft from s and e lines.

WILLIAMSON COUNTY—M. L. Vaughan, Georgetown, R. E. Logan, 215, 1, D. Wright sur, 300 ft from e and 500 ft from s line.

WHARTON COUNTY — Ferdinand Heine, Jacksonville, W. J. Woytek, 20, 13, B 19, S. F. Austin sur, 50 ft from w and 225 ft from s line.

WEBB COUNTY — Magnolia, Dallas, I. Perez, 640, 1, B 460, J. Poitevent sur, 1980 ft from n and 660 ft from w line; D. Benavides, 60, 1, B 14, B.S.&F. sur, No. 694, center of w¼ of se¼.

ZAPATA COUNTY—R. F. Blankenship, Oklahoma City, G. T. Montemayor, 40, 1, B 7, S 64, 150 ft from n and e lines; E. F. Garza, 40, 1, B 31, S 413, 160 ft from n and w lines.

LOUISIANA

ASSUMPTION PARISH—Poor Boys Drilling Co., Paincourtville, Labarre Est. 1, 47-12s-13e, 400 ft s and 50 ft w of ne c of lse, E½ of nw ¼.

CADDO PARISH—Eastern Carbon Black Co., Monroe, Mrs. Zack Abney, 8-17n-16w, 661.5 ft s and 660 ft e of nw c sw nw. Gulf Refg. Co. of La., Shreveport, S. S. Hunter Est. 5, 17-19n-14w, 990 ft w and 330 ft s of ne cor of sec. Haynes Brothers, Shreveport, Pope W. Oden 2, 20-19n-14w, 1650 ft s and 330 ft w of ne c of sec. Ohio Oil Co., Shreveport, S. S. Hunter Est., Inc. 6, 17-19n-14w, 330 ft s and 330 ft w of ne c nw ne. Planters O. & G. Co., Shreveport, S. S. Pittman 2, 23-19n-14w, 200 ft s and 200 ft e of nw c ne. The Texas Co., Shreveport, S. S. Hunter Est. 3, 8-19n-14w, 990 ft w and 330 ft n of se c of sec.

CALCASIEU PARISH — Vacuum Oil Co., Houston, Tex., Miller 15-A, 9-10s-9w, 1241 ft e and 150 ft s of nw c se.

DESOTO PARISH — Benson O. & G. Co., Shreveport, R. H. & W. J. Hill 1, 4-10n-13w, 1845 ft s and 1200 ft w of ne c of sec.

IBERIA PARISH—Jefferson Lake Oil Co., New Orleans, Lake Peigneur 3 (amended permit), starting at ne c of sec. 58, T 12s, R 5e, thence s 77° w about 3450 ft, thence 200 ft nw to stake in Lake Piegneur.

MOREHOUSE PARISH—J. S. Herkness Carbon Co., Bastrop, Bowles 11, 18-20n-5e, 4620 ft sand 1980 ft e of nw c of sec. J. S. Herkness Carbon Co., Bastrop, Bowles 12, 18-20n-5e, 3300 ft s and 3392 ft e of nw c of sec.

OUACHITA PARISH—Arkansas La. Pipe Line Co., Shreveport, Rea & Green 3, 82-18n-4e, 1350 ft s and 1526 ft w of ne c ne nw sec 11 in sec 82. Hope Producing Co., Monroe, Fairbanks 1, 25-20n-4e, 624 ft e and 660 ft n of sw c se. Hope Producing Co., Monroe, L. N. Fairbanks 2, 25-20n-4e, 1876 ft s and 628 ft n of sw c se. Hope Producing Co., Monroe, L. N. Fairbanks 3, 36-20n-4e, 1876 ft e and 628 ft s of nw c ne. Palmer Corp., Shreveport, J. W. Cagle 1, 7-18n-5e, 2007 ft s and 516 ft e of nw c of sec. Pipes & Mack, Monroe, Slagle-Johnson 3, 47-18n-4e, 642 ft s and 530 ft w of northeasterly c of sec. Trousdale & Wright, Monroe, Mrs. Kate Cole 1, 42-18n-4e, 296 ft s and 47 ft w of c of secs. 8, 9 and 42 in sec 42.

RED RIVER PARISH — Triple Oil Co., Mansfield, Pollock 1, 33-13n-11w, 575 ft s and 330 ft w of ne c of sec.

RICHLAND PARISH—W. C. Feazel, Monroe, A. H. Brown 2, 22-16n-6e, 1940 ft w and 185 ft n of se c of sec. Palmer Corp., Shreveport, C. W. Earle 2, 31-17n-6e, 1980 ft n and 1320 ft w of se c of sec.

SABINE PARISH—Bridges-Clark Oil Co., Pleasant Hill, Williams 2, 33-10n-12w, 2140 ft s and 2280 ft w of ne c of sec.

TERREBONNE PARISH—The Texas Co., Shreveport, State-Lake Barre 3, 30-21s-20e, 800 ft s and 250 ft e of nw c of sec. The Texas Co., Shreveport, State-Lake Barre 4, 30-21s-20e, 1900 ft s and 600 ft e of nw c of sec.

UNION PARISH — E. S. Hall, Monroe, Spencer 3, 2-20n-3e, 317 ft w and 182.5 ft s of ne cor of nw¼ of se¼. Interstate Natl. Gas Co., Monroe, Interstate 23, 33-20n-3e, 660 ft s and 660 ft e of nw c of sec.

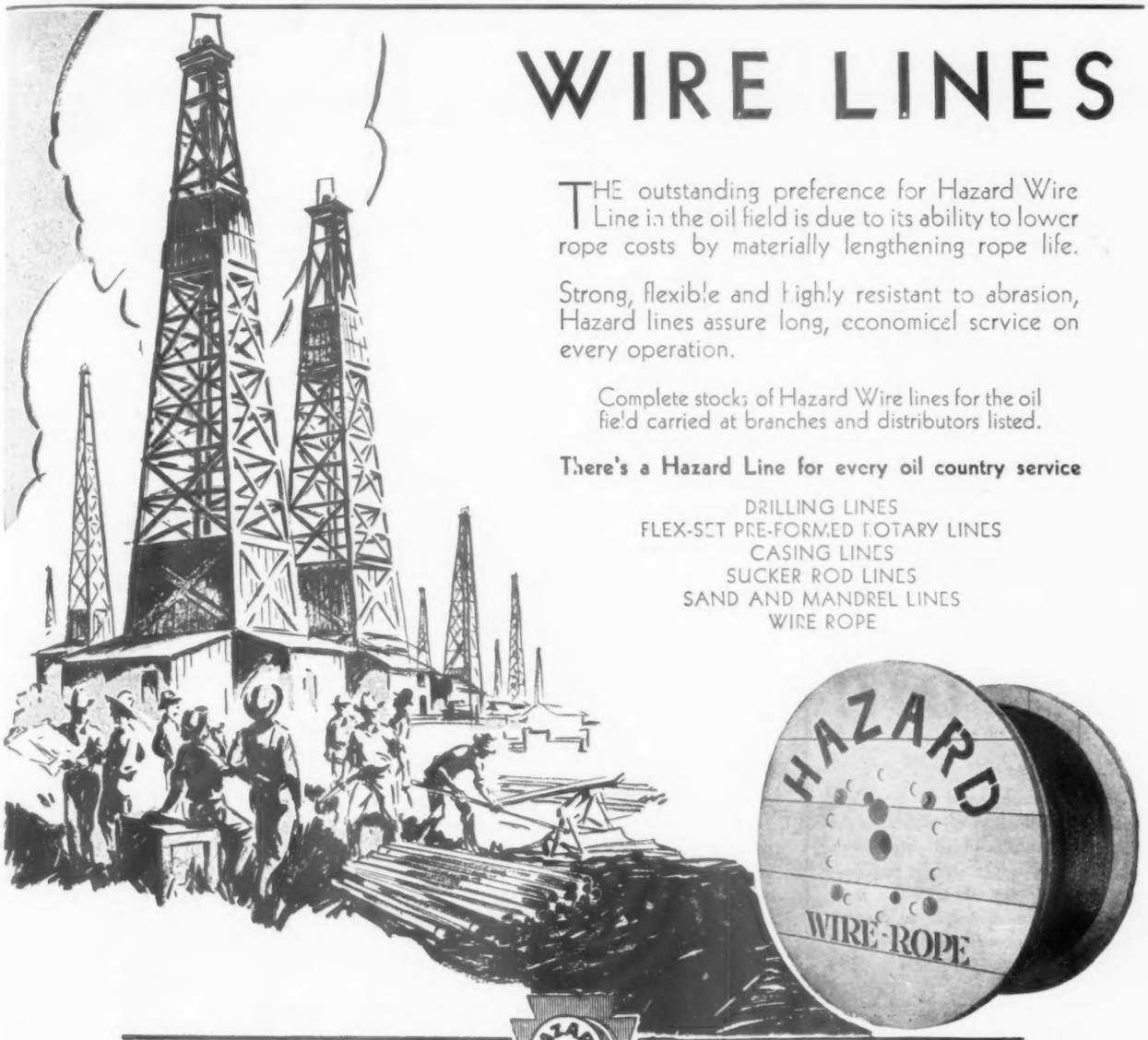
New York—Subject to approval of its stockholders, Falcon Oil Corporation has negotiated a sale for all the properties of the company to Credito Nacional Peninsular Y Americano, of Madrid, Spain.

The properties of Falcon Oil Corporation are all located in Venezuela. The company has a production of approximately 4000 barrels per day, which is derived from a five per cent royalty interest in the production of Lago Petroleum Corporation from the maritime zones on the eastern shore of Lake Maracaibo.

The properties sold also include all the concessions of Falcon Oil Corporation in Venezuela, which amount to approximately 293,000 acres located in the Lake Maracaibo basin, and over 93,000 acres in the State of Monagas in eastern Venezuela.

W. A. Harriman & Company and Petroleum Bond & Share Corporation conducted the negotiations for this sale. The stockholders' meeting to ratify the sale will be held on September 19. The consideration has not been made public.

HAZARD



WIRE LINES

THE outstanding preference for Hazard Wire Line in the oil field is due to its ability to lower rope costs by materially lengthening rope life.

Strong, flexible and highly resistant to abrasion, Hazard lines assure long, economical service on every operation.

Complete stocks of Hazard Wire lines for the oil field carried at branches and distributors listed.

There's a Hazard Line for every oil country service

DRILLING LINES
FLEX-SET PRE-FORMED ROTARY LINES
CASING LINES
SUCKER ROD LINES
SAND AND MANDREL LINES
WIRE ROPE

HAZARD WIRE ROPE COMPANY
WILKES-BARRE PENNSYLVANIA

1625 South Troost Ave., TULSA, OKLA.

New York Pittsburgh Chicago Denver Los Angeles San Francisco Birmingham

DISTRIBUTORS

BOVAIRD SUPPLY CO.
904 Mid-Continent Bldg., Tulsa, Okla.
Borger, Texas; Beggs, Oklahoma; Maud, Oklahoma; Sapulpa, Oklahoma; Seminole, Oklahoma; Tulsa, Oklahoma; Independence, Kansas; Wichita Heights, Kansas; Winfield, Kansas.

CAMERON TOOL & SUPPLY CO.
Cameron, W. Va.

CROTTY & CO.
Parkersburg, W. Va.

DANGER SUPPLY CO.
Weston, W. Va.

FORT WORTH WELL MACHINERY & SUPPLY CO.
Fort Worth, Texas

GREAT NORTHERN TOOL & SUPPLY CO.
Billings, Mont.

HOUSTON OIL FIELD MATERIAL CO., Inc.
Houston, Texas

LONGHART SUPPLY CO.
612 Petroleum Bldg., Fort Worth, Texas
Big Springs, Texas; Graham, Texas; McCamey, Texas; McLean, Texas; Pampa, Texas; Pyote, Texas; Ranger, Texas; Rankin, Texas; Santa Rita, Texas.

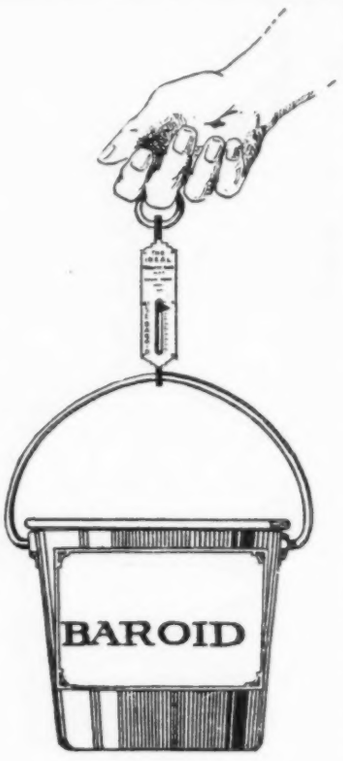
MID-CONTINENT SUPPLY CO.
Fort Worth, Texas

MOUNTAIN IRON & SUPPLY CO.
Parkersburg, W. Va.; El Dorado, Kansas; Eureka, Kansas; Madison, Kansas; Valley Center, Kansas; Wichita, Kansas.

PRICHARD SUPPLY CO.
Mannington, W. Va.

PRODUCERS SUPPLY & TOOL CO.
Marietta, Ohio; St. Mary's, W. Va.; Fort Worth, Texas; Olney, Texas; Graham, Texas; Bristow, Oklahoma; Coleman, Texas; Muenster, Texas

UNITED OIL WELL & SUPPLY CO.
Los Angeles, Cal.



Baroid

Every man connected in any way with the production of oil knows the disasterous results of gas blow outs. Mud, of the proper weight and density will prevent these blow outs. Baroid, as a mud weight to prevent blowouts, is a proven success.

"Mud It"

a chemical for treating drilling muds is being used in the coastal fields with favorable results.

Baroid and Mud-It is an excellent combination—Big stocks for quick shipment. Send us your order or write today for prices and full information.

Peden Iron & Steel Co.
Houston—San Antonio—Shreveport

Hazards in Pipe Line Construction

(Continued from page 128)

for improvement. We are continually on the outlook for more effective safeguards against accidents to men working around machinery and for new methods of doing our work with a greater degree of safety for the workman.

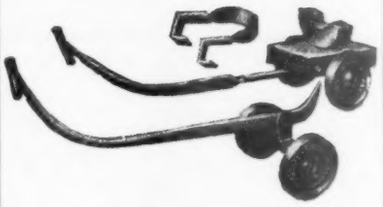
Equipment

When we discuss accidents in connection with equipment with which the men do their work, we must discuss it in terms of individual responsibility. The topography of the country in which we work may not be to our liking; the general methods of doing our work may not be to our liking, the general methods of doing our work may be somewhat cut and dried and outlined for us by years of practice, but the proper use of and proper care for equipment and tools becomes at once an individual responsibility. Reliable firms engaged in construction work do not usually purchase inferior equipment, as it is economy, both in labor performed and accident prevention, to buy the best equipment available. But, accidents have happened to careful workmen solely because tools were being used on jobs for which they were not intended. An axe cannot be used for a sledge hammer very long before someone is hurt. Men have been killed in pipe line work because of uncared for tools. The best steel for drills may be supplied a gang but if the burred heads are not removed regularly some workman will get a piece of steel in his eye. The best of chains and ropes may be purchased but chains and ropes wear out if these materials are not inspected and kept in constant repair some one will put too much strain on them and as a result someone is hurt. On large construction jobs, where numerous tools and machines are required it is foolhardiness to expect casual and inexperienced labor to have, in the beginning, correct ideas about the proper use and care for these tools and equipment. This, at once, becomes the duty of specially trained men, experts in their lines, who by patient instructions and constant inspection can eventually instill in men the proper use of and care for the equipment they use.

Personnel

Practically all accidents begin and end with individuals. Comparatively few people are injured by the elements and forces of nature. In the majority of cases accidents are caused by the carelessness of a single individual who either contributes toward an accident to another or becomes the victim of his own carelessness. It is obvious, therefore, that even the conditions under which we work may be unusual; even though our methods may be obsolete and our equipment poor, if the personnel of a gang has been properly instructed, and trained as well as sold on the idea of safety, accidents can and will be reduced. The personnel of pipe line

PARMACO CASING WAGONS



PRACTICALLY ALL FORGED STEEL—DESIGNED TO WITHSTAND THE HARDEST USAGE —PRICED RIGHT.

Send for Literature

PARKERSBURG MACHINE CO.
PARKERSBURG, W. VIRGINIA

PARKERSBURG MACHINE Co. PARMACO PARKERSBURG, W. VA. U.S.A.

The House of Courteous Service

A new and authoritative contribution to the petroleum industry

STRUCTURE of TYPICAL AMERICAN OIL FIELDS

VOLUME I

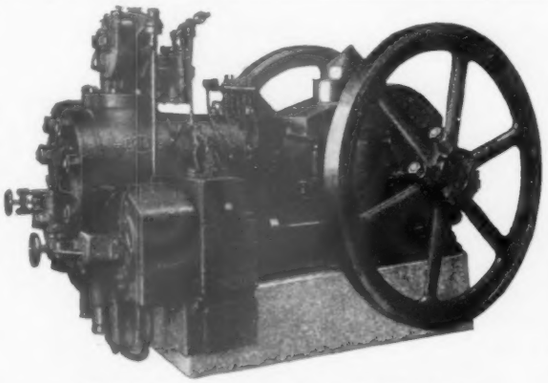
Thirty-nine authors describe sixty typical fields in thirteen states: Arkansas, California, Indiana, Kansas, Kentucky, Louisiana, Michigan, New Mexico, Ohio, Oklahoma, Tennessee, Texas and West Virginia.

Approx. 510 pages, 194 illustrations. 6 x 9 inches. Clothbound.

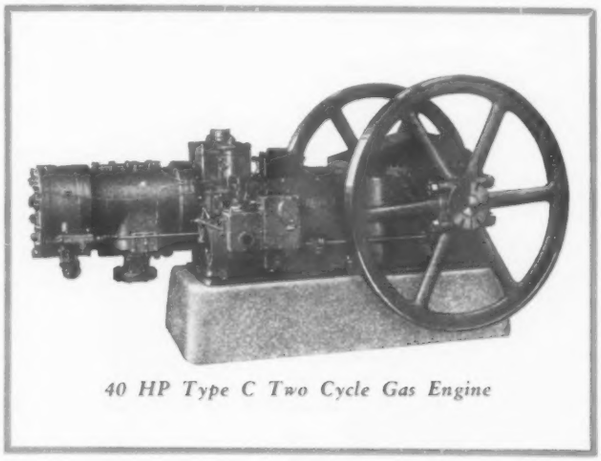
Price, $5.00, Postpaid

American Association of Petroleum Geologists
Box 1852, Tulsa, Oklahoma

REID
OIL FIELD
MACHINERY



40 HP Type B Four Cycle Gas Engine



40 HP Type C Two Cycle Gas Engine

(Above) Type B Four Cycle Gas Engines. Five sizes—30 HP, 35 HP, 40 HP, 45 HP and the 16″ x 21″ which develops between 75 and 80 HP at 150 RPM and 100 HP at 225 RPM. For driving compressors, pumps, heavily loaded pumping powers, etc.

(Left) Type C Two Cycle Enclosed Gas Engines. Two sizes—40 HP and 45 HP. For beam well pumping and other heavy reverse work.

The Reid Gas Engines shown here will be on exhibition at the Tulsa Show. See them in operation. Notice the smoothness and steadiness with which they operate. Compare them with any other prime mover for performance, simplicity, accessibility and maintenance.

Our representatives will be glad to give you complete information on these engines, and any other Reid Oilfield Machinery.

JOSEPH REID GAS ENGINE COMPANY
OIL CITY, PENNSYLVANIA, U. S. A.

BRANCHES—Marietta, Newark, and Logan, Ohio; Charleston, W. Va.; S. R. Shoup, 724 Board of Trade Building, Los Angeles, California.

EXPORT SALES REPRESENTATIVE—Oil Field Equipment Co., Inc., 30 Church Street, New York City.

DISTRIBUTORS—Frick-Reid Supply Corp., Pittsburgh, Pa., and Tulsa, Oklahoma, Distributors for Bradford and Pittsburgh, Pa., Kentucky, Oklahoma, Kansas, Texas, Arkansas, Louisiana, and Wyoming; R. B. Moore, Bolivar N. Y.; distributed in California by The Republic Supply Co. of California, office address 2122 East Seventh St., Los Angeles, Cal.

"THE CHIEF SUPER-HEATER"

No Waiting On the Job

Quick Fire

Built in 3 sizes 250, 500 and 1000 Gal.

American Heaters are built for heavy use—for immediate firing. Men sitting on the job mean losses. It's better to have the best—and a whole lot SAFER. Get the FACTS on "The Chief."

Write for Catalog and Prices

AMERICAN STEEL WORKS
Kansas City, Missouri

Nu-Alloy
NON-CORROSIVE STEEL

Balls and Seats

Nu-Alloy Balls and Seats have set new service records for continuous and uniform performance.

Nu-Alloy Balls and Seats are manufactured in the Mid-Continent by pumping equipment specialists to meet Mid-Continent pumping equipment requirements.

Compare a Nu-Alloy Ball and Seat . . . it reflects the care and precision of manufacture . . . then test it. A test will convince that Nu-Alloy Balls and Seats deserve the service record they have so justly earned.

Immediate Shipment

Your supply store can secure immediate shipment of NU-ALLOY Balls and Seats within two hours after your order is received. Branches: Houston, El Dorado, Tulsa, Coffeyville. Headquarters and plant: Fort Worth, Texas.

PETROLEUM EQUIPMENT CO.
JON R. LONG, Manager *Plant and Office:* FORT WORTH, TEXAS

gangs may be discussed under two general groups:

1. The Supervisory Group — composed of foremen and their assistants.

2. The Labor Group — composed of skilled and unskilled workmen, of every nationality, color and degree of intelligence.

The promotion of safety and the prevention of accidents in pipe line construction work rests largely upon the foreman and assistants. We have some queer combinations in the personalities of some of our construction foremen. We have some who are skilled and experienced men in their particular lines but who simply cannot see the necessity for all this furor over accident prevention. These are all products of the old school of the "old rough and tumble" days when it was a case of the survival of the fittest. We have others who are both skilled and experienced and who see the importance of safety work and the removal of hazards, but who are lacking in the executive ability and the power to sell the idea of safety to their men — leadership is more of an inherited trait than a cultivated one, even in construction work. We have others who are born leaders and can become enthused over any movement but who lack the skill and experience required to hold a job of any real importance. The proper placing and training of these various personalities among the supervisory personnel of large construction gangs is a real and persistent problem; but, in the end, it means a definite promotion of safety and prevention of accidents.

The Labor

In the final analysis, the casual laborer is the real problem in safety work. He personifies the spirit of human carelessness. It is he who causes most accidents. It is he who is usually the victim. His sense of responsibility to himself and to others is often very limited. He often places the wrong interpretation on the efforts of a corporation to promote a greater degree of safety. He is often a man of low intelligence, illiterate and must be taught and trained like you would teach and train a child. He is at times definitely and positively socialistic in his attitude toward capital and organized industry.

These are the dark shades on the picture of a pipe line laborer. There is a brighter side to the picture. You can appeal to his vanity and to his selfishness. In most all cases you can appeal to his loyalty to his boss, and, furthermore, you can count on him eventually reacting to persistent mass suggestion or propaganda, and he can be taught safety. He can be convinced of the dangers of infection, the importance of the first aid treatment, the dangers of improper and defective tools; the importance of protective devices; the importance of concentration on the work at hand; the dangers of needless haste and bull-headedness. The instructions, if faithfully and persistently provided, will bring positive results in safety work and accident prevention.

The Duties of the Management

Generally speaking, duties of manage-

The LARKIN Improved SAND PUMP

Manufactured Only at Butler, Penna.

Furnished with either or both of these bottoms

LARKIN REGULAR BOTTOM

LARKIN BIT BOTTOM

—is giving satisfaction everywhere

The LARKIN Improved Sand Pump is flexible, in that it operates successfully at all depths—under all conditions. Under normal conditions this Pump will, when equipped with its REGULAR Bottom, bring out the sand and sediment in record time.

Where cavings have packed hard, the Larkin Bit Bottom may be used. It will break up the hard formations efficiently, and so quickly pass the material through to the pump, that the pump may be operated at full capacity without being delayed to any extent, even by the worst conditions encountered. If you want to be prepared to meet the toughest pumping jobs with the best pump, get the Larkin and have it equipped with either the Regular or Bit Bottoms.

The LARKIN Improved Sand Pump will clean out more wells, for more years, than any sand pump made. Its Barrel is of "NATIONAL" Seamless Steel Tubing. In every detail of construction, the materials used are unexcelled for quality.

There is no better equipment than this Larkin Leader. It has been made at Butler, Penna., for years. It is still made there and there only. Even more today than when the Eastern fields were young, it is the leading sand pump on the market.

Write for Circular and Price List

LARKIN & CO., Butler, Penna.

C. W. WEBSTER

West Texas Oil and Gas Leases

⅞ *Mineral Deeds*

ROYALTIES

18 Years in Texas

Reference: Mercantile Agencies and National Banks

Petroleum Building
FORT WORTH, TEXAS

HEYDRICK'S NEW MAPS

WEST TEXAS

County Maps
Combination Maps

Descriptions and prices on application

HEYDRICK MAPPING COMPANY

Wichita Falls, Texas

McCollum Exploration Co.

Contracts taken for Seismograph Work

UNITED STATES
5522 Connecticut Ave.,
WASHINGTON, D. C.

FOREIGN COUNTRIES
1211 Esperson Bldg.,
HOUSTON, TEXAS

HIRSCH, BROWN AND SUSMAN
Attorneys at Law
Bankers Mortgage Building,
Houston, Texas
Specializing in Oil Law and Land Law

PATENTS
Patents Obtained and Trade Marks and Copyrights Registered
HARDWAY & CATHEY
428-29-30 Bankers Mortgage Bldg.
Phone Fairfax 8232 Houston, Texas

PATENTS
Patents Obtained, Trade Marks, Patent Causes
JESSE R. STONE
Formerly Assistant Examiner
United States Patent Office
Andrews, Streetman, Logue & Mobley
12th Floor Union N. Bk., Houston, Texas

THE FT. WORTH LABORATORIES

Field Gas Testing. Analysis of oil field brines, gas minerals and oil. Sell Thermometers, Hydrometers and Laboratory Glassware.

F. B. Porter, B. S., Ch. E., Pres.
R. H. Fash, B. S., Vice-President
828½ Monroe St, Ft. Worth, Tex.

ment may be classified as follows:

1—Provide a constant flow of subtle propaganda with mass enthusiasm for the movement towards a greater degree of safety for the common good as the final aim.

2—Provide the proper instructions, select with care and distribute with discretion the foremen and assistant foremen in every gang.

I can think of no greater test of the general ability of any executive than that of putting over a great program of safety and accident prevention. To this important work I have dedicated my very best efforts and most earnest thoughts.

Two Important Deals Are Closed in Oklahoma

Tulsa.—Two deals in Oklahoma oil producing circles were announced last week. The Sunray Oil Corporation bought a five-acre producing lease with eight wells and 1200 barrels daily production, as well as 5000 acres of undeveloped leases in the Oklahoma City area from the Anderson Pritchard Oil Corporation of Oklahoma City. The Carter Oil Company of Tulsa bought the 40-acre lease, with one producing well, from the Wrightsman Petroleum Corporation in the East Earlsboro pool.

The producing lease bought by the Sunray Oil Corporation is in Section 16-5n-8e. The company has other activities in the area. The leases near Oklahoma City are in and around development there. None of these leases has production or development at this time.

Pontotoc County

Tulsa.—The importance of the Bebee area in northern Pontotoc County was materially increased last week by the completion of the Transcontinental Oil Company's Perry 2, SWc NW NW Section 19-5n-5e. This well found the Viola lime at 2282 feet and at eight feet it produced 1900 barrels in 21 hours. Due to lack of tankage the new well was pinched in.

This well resulted in six new locations being made at once. All in Section 19-5n-5e. Several wells are standardizing and will soon drill in to tell more about this district, which has had several good completions from time to time.

Royalty for sale in Raccoon Bend Field, Austin County, Texas. Drilling at 1600 feet within 1700 feet of producing well. Apply 4939 Oakland St. after six P.M. Telephone W-1463. Mrs. A. Diemar.

We are in touch with eastern capital for loans, for acquisition, development and operation of meritorious oil and mining enterprises. Send full particulars.
O. E. & G. M. MADDOX
6323 Main St.,
Kansas City, Mo.

Specify Triad to Cut Down Cost

Manufactured by
THE TRIAD PRODUCTS CO.,
4th Floor Shuey Bldg., Springfield, Ohio
Sold By
FRICK-REID STORES
Everywhere

CONFIDENTIAL SCOUT REPORTS

On all CALIFORNIA FIELDS and WILDCATS

So. Calif. Weekly.....$10 per mo.
Nor. Calif. Weekly.....$10 per mo.
Nor. and So. Calif. Daily....$10 per mo.

Combination rates furnished on request.

Munger Oil Information Service
416 Haas Bldg. Los Angeles, Cal.

Coastal Oil Finding Company

Contracts taken for Torsion Balance Work

Esperson Bldg., Houston, Texas

Phone Fairfax 4383

MAJESTIC HOTEL
LAKE CHARLES, LA.
Your home while in Southwest Louisiana
Headquarters for Oil Co. Representatives

JOHN F. WEINZIERL
CONSULTING GEOLOGIST
ADVISOR ON GEOPHYSICAL INSTRUMENTS
619 Petroleum Bldg., Houston, Texas

"Photographs of Oil Fields and Machinery Must Be Right"
Calvin Wheat's Photographs Are Right!
CALVIN WHEAT STUDIOS
415 Louisiana St. Preston 2526
Houston, Texas

EXPERT MECHANIC SHOP
Walter G. Thiele, *Prop.*
Repairs made on all kinds of Geophysical and Surveying Instruments.
Specialist on Torsion Balance.
17 Years Experience.
Phone T-8720 - 2723 Houston Ave.
Houston, Texas

DON'T MISS THESE EXHIBITS

VISIT—

BOOTHS 99 AND 112
TEXAS BUILDING

SEE—

Scale models of NATIONAL SEPARATORS in operation on different types of wells:

Handling high pressure well with series installation.

Handling large volume natural flowing well.

Handling straight air-gas lift well.

Handling intermittent air-gas lift well using NATIONAL INTERMITTER.

Miniature welded tank battery.

See How Mist Extraction Is Secured

OUTSIDE SPACE
LOT B

Full size NATIONAL SEPARATORS.

See method of preventing sand cutting out valves.

NATIONAL TANK CO.
TULSA, OKLA.

Waukesha Demonstration Truck Now Touring the Oil Fields of the United States

Taking the finished product to the *prospective* user

THE newly designed Waukesha Cable Tool Drilling Unit has been remarkably successful .... supplanting the old steam engine and single cylinder gas engine. Knowing that "seeing is believing" Waukesha is taking this unit direct to all the oil fields where producers and contractors may see it....operate its controls.... study its features and performance.

The complete unit .... made up of an 85 hp. four-cylinder engine, with reversing transmission.... is mounted on a two-ton Sterling truck, also powered by a Waukesha six-cylinder engine. An experienced oil field man is in charge.

The New WAUKESHA Type G Cable Tool Drilling Unit is made in four sizes adaptable to a wide range of utility.... 70 hp. and 85 hp. four-cylinder engines for the shallower territories.... and 100 hp. and 120 hp. six-cylinder for heavier duty in deep cable tool drilling. All engines are adapted to the same reversing transmission which carries a wide factor of safety.

You are invited to visit our booth located at spaces 89, 90, 121 and 122 Oklahoma Building during the International Petroleum Exposition.

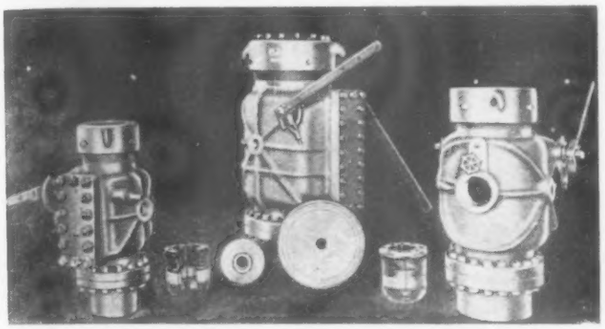
The orange and black Waukesha Truck .... let it demonstrate for you. Simply write us where you are—no obligation. Bulletin 721 describes this advanced unit. Ask for it.

Oil Industry Equipment Division, Waukesha Motor Company, Waukesha, Wisconsin. Offices: New York, 8 West 40th Street; San Francisco, 7 Front Street. In the Oil Fields: C. F. Camp Company, Tulsa; Portable Rig Company, Houston; Bradford Supply Company, Bradford, Pa.

974

WAUKESHA ENGINES

NEW EQUIPMENT, CATALOGS, BULLETINS, BOOKS



Baker Combination Drilling Valve and Blowout Preventer

Drilling Valve and Blowout Preventer

BAKER OIL TOOLS, INC.

The Baker combination drilling valve and blowout preventer illustrated here is a recent product of Baker Oil Tools, Inc., 2959 East Slauson Ave., Huntington Park, California. The high pressure flange type drilling valve is fitted with a six-inch circulating outlet and two three-inch flow line outlets. A manifold with a four-inch outlet is also provided.

This new product is made of cast electric steel. It is designed for a safe working pressure of 1500 pounds and has been tested to a hydrostatic pressure of 3000 pounds. The main body is flanged on the bottom and fitted to a companion flange machined to conform with the size of pipe or casing in the well.

The valve-locking device is constructed to prevent the locking of the valve until the valve is brought very near the valve seat. This permits a free movement without danger of the valve locking unless it is intentionally brought into or near the locking position. A by-pass valve is provided to equalize the pressure on both sides in the event it is desired to open the valve under pressure.

The blowout preventer body neck is constructed to receive the regular Baash-Ross (Hosmer) auto-lock hinged and latched packing assembly and is threaded externally to take a special lip bonnet containing four screws, which, when fully screwed in, prevent the lip bonnet from being screwed on the body neck too far.

In the event of a threatened blowout with the drill pipe in the hole the Baash-Ross packing assembly is latched around the drill pipe below a coupling or tool joint and lowered into the body neck below the lip bonnet, where it is automatically latched into place. The weight of the drill pipe resting on the auto-lock packing assembly expands the rubber to shut off the gas pressure. The lip bonnett is then screwed down on the packing assembly. If the weight of the drill pipe is insufficient to pack off, it is possible to pack off by pulling up and taking a strain on the packing assembly from below.

In the event that the drill pipe is out of the hole, a blowout may be prevented and controlled by closing the flapper valve and using the various fittings and appurtenances connected to the six-inch and three-inch outlets.

More detailed information on this product may be obtained by writing Baker Oil Tools, Inc., at the above address.

The Bailey and Becker Company of Tulsa has recently been appointed distributors in Oklahoma of Bettis protectors, according to Jack Ballagh, secretary of Patterson-Ballagh Corporation of Los Angeles, manufacturer of this product.

Arc Welder on Truck

PONTIAC TRACTOR COMPANY

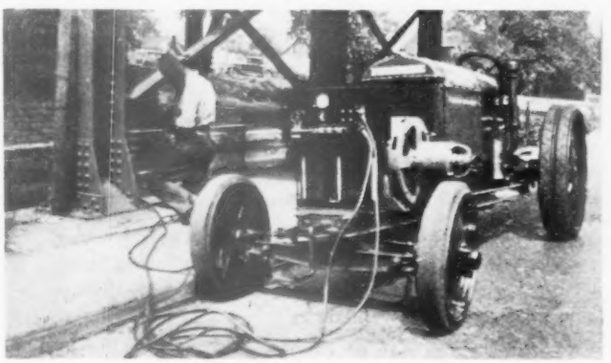
The Pontiac Tractor Company of Pontiac, Michigan, announces the new Lincoln stable arc welder mounted on the McCormick-Deering tractor. This unit is furnished in either the 200 or 300 ampere machine and offers a wide range of utility.

The extension frame in this mounting is such that the tractor is simply set into a four-inch "I" beam frame and the front axel assembly is set ahead under the frame, thereby lengthening the wheel base. This construction is made to reinforce the tractor and to give it balance, making it easy to steer with the added weight.

The welder unit complete with the panel is mounted on this frame member ahead of the tractor and takes its drive from the power pulley at the side of the tractor by a belt. This gives a compact self-contained unit capable of moving about under its own power.

Dual tires used in the rear give this unit a road speed of 15 miles per hour.

Details will be furnished by the company at the above address



Lincoln Arc Welder mounted on McCormick-Deering tractor by Pontiac Tractor Company

W-K-M HANDLING BREWSTER CORE BARREL

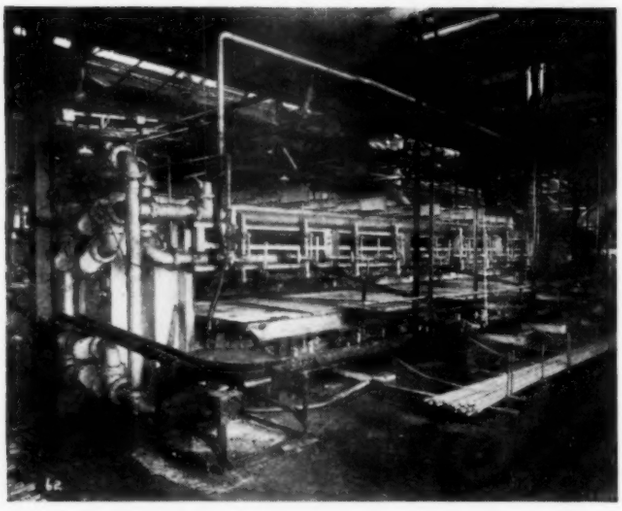
The Brewster Company, Inc., of Shreveport, announces W-K-M Company of Houston and New York City as exclusive export agents for the perfection core barrel, a product of the Brewster Company. It is expected, the announcement states, that W-K-M Company will soon carry the complete line of Brewster Company products, including core barrel cutter heads for both hard and soft formations, shouldered tool joints, drill collars, fishtail and special gumbo bits, and special rock bits.

OFFICE MOVED

Sullivan Machinery Company's branch office and warehouse at Huntington, West Virginia, have been moved from 736 Third Avenue to new quarters at 702-704 Eighth Avenue. J. S. Walker, Jr., is manager of the Huntington office, the new location of which gives the company more direct rail facilities as well as added space in its program of expansion.

WELDING BULLETIN

The Fusion Welding Corporation, 103rd and Torrance Avenue, Chicago, has recently issued a new bulletin on its Type T metal alloy, and a copy is available upon request to the above address.



Sucker rod normalizing furnace in S. M. Jones Company plant

New Sucker Rod Machine

S. M. Jones Company, Toledo, Ohio, is now running at full production in its enlarged plant, a slot type sucker rod normalizing furnace having been designed and erected to fully normalize full length 30-foot sucker rods. This new feature of treating the rods is given by the manufacturer as being the most important step in the manufacture of sucker rods since the making of the first steel sucker rod in 1893. The Expansion of S. M. Jones Company's plant facilities and the installation of this new equipment follows a period of five years of experimental work.

Prior to 1893 all pumping wells were equipped with wooden sucker rods, the standard size for two-inch tubing being a 1⅝-inch rod with boxes and pins riveted to the rods through strap iron. Then came the Acme sucker rod, which was not a welded rod, but one having joints made by inserting the bar in malleable sleeves and then by upsetting the bar in the sleeve. Efforts to weld a box and pin on the rods were unavailing on account of the cost of machining the boxes and pins, then hand-welding them on to the bars, according to the manufacture.

The present plant of the S. M. Jones Company has followed the demand for sucker rods to carry the continued growing loads without an increase in weight and diameter, thereby necessitating the improving of the bars themselves and the methods of manufacture, and still keeping the diameters down to the standard, ⅝, ¾ and ⅞-inch sizes.

ROBERT BURNETT

Robert Burnett of Houston has recently joined the staff of the Vulrox Company, 1100 North Sixth Street, St. Louis, as head of the petroleum division. He arrived in Tulsa early in September preparatory to establishing offices for the company there. Tulsa will serve as the headquarters for the petroleum division of the company, and a force of engineers serving the petroleum division in laboratory research will be located in this office.

The Vulrox Company, following a number of years of research, has developed a rubber substitute in liquid, sheet, semi-solid and solid forms to act as a combative agent against corrosion caused by hydrogen sulphide and other chemical forces. The products will be used for coating tanks and pipe lines and other equipment subject to corrosion.

International Derrick Buys Boykin

Formal announcement has just been made of the purchase of the Boykin Machinery and Supply Company of Beaumont, Texas, by The International Derrick & Equipment Company of Columbus and Los Angeles. This acquisition constitutes one of the largest mergers of recent years in the oil well supply industry and marks a further step in the world-wide expansion program of IDECO. The International Derrick & Equipment Company has purchased all of the capital stock of Boykin Machinery and Supply Company together with its field stocks and large manufacturing plant at Beaumont, all of which has been transferred to the IDECO interests.

The selling company has been reorganized as a subsidiary company under the name of The International Derrick & Equipment Company of Texas with Harry M. Runkle of Columbus, Ohio, as president, B. Boykin, Jr., of Beaumont, vice-president and general manager, and L. L. Powell of Houston, secretary and treasurer.

B. Boykin, Jr., and E. L. Boykin, both of Beaumont, will continue with the organization in managerial capacities and practically all of the present employes in the office and shops will be retained. A new office building is being erected, a steel foundry installed and a number of new buildings added to the present plant.

International Derrick & Equipment Company also owns the Houston Galvanizing and Plating Company of Houston. Ten acres of ground have been purchased near the ship channel at Houston, and work started toward the construction of a structural and galvanizing plant at that place for the manufacture of the complete IDECO tower and building line.

The International Derrick & Equipment Company will maintain the Beaumont and Houston works, adding their production facilities to the other IDECO plants located at Columbus and Delawarel Ohio, Torrance, California and Tulsa.

Perry W. Oliver has recently been appointed manager of the San Francisco office of Sullivan Machinery Company. He succeeds Ray P. McGrath who was manager at San Francisco for 15 years and up to his death which occurred August 25. McGrath had been a member of the Sullivan Machinery Company organization since 1906.

PROTECTOR CATALOG

Patterson-Ballagh Corporation, Insurance Exchange Building, Los Angeles, has recently issued a new catalog covering information regarding the application of anti- friction protectors to drill pipe. Included in the information carried are results obtained in many oil fields of the world. A copy will be mailed upon request.

PRIZE FOR SLOGAN

Merco Nordstrom Valve Company, 343 Sansome Street, San Francisco, is offering $500 in cash prizes for the best slogans submitted prior to December 31. The slogan is to be not more than 10 words and is to be used in publicizing of the company's valves, taking the place of the present slogan, "Won't Leak — Won't Stick." First prize is $250, second prize $100, third prize $50, $10 each for the next four prizes and $5.00 each for the next best 12 prizes. Anyone except employes of the company are eligible to compete for the prizes and the company will mail a copy of its catalog on valves to interested parties.

Through an error, the cut of the Happy vertical tightener which appeared in the advertisement of the Happy Belting Company on page 89 of the September 20 issue of *The* Oil Weekly was printed upside down.

When installed in the field, the tightener is just the reverse of that shown in the illustration.

New H.C.SMITH TOOLS

that meet every condition of modern coring, reaming and drilling operations.

H.C.Smith Type "C" Drilling Bit with Roller Reamer Body: Makes faster hole and straight hole. Two-point roller reamers steadies bit in hole and insures straight hole. Reamer rollers same diameter as bit, eliminating necessity of reaming down in order to get new bit on bottom. Bit retains same serrated design which has proved so successful in previous H. C. Smith bits and can be run with side reamer body or plain body.

H. C. Smith Type "CI" Underreamer; Never gets stuck in the hole. Hydraulic control insures expansion of roller cutters to any desired point in the hole and enables driller to know positively when in expanded position. Positive closing feature eliminates all possibility of sticking or dragging when coming out.

The new Type "F" Rock Core Bit Head: Designed especially for coring in rock formations. Interchangeable with H. C. Smith Type "C" regular Coring Outfit. This tool makes the H. C. Smith line of core heads complete for all formations ranging from schist quartz and chert to the softer sand chalk, anhydrites and shales.

H. C. Smith Type "C" Coring Outfit: widely used in all fields. Takes perfect cores in any formation that a fishtail or dics bit will penetrate. Renewable cutterheads. Drop forged steel throughout.

H. C. Smith Draw Works Brake Attachment: with leverage ratio increased about 3 to 1 over the conventional type, eliminates kick-back of the brake rod. Considerably lessens labor and shock ordinarily experienced by driller. Sturdy and capable of withstanding a tremendous amount of abuse. Adaptable to all types of Emsco, Union Tool and Oil Well Brake Bands.

For detailed information on any or all H. C. Smith Tools, write for illustrated bulletins.

H. C. SMITH MANUFACTURING CO., Inc.

Los Nietos, California

Branch Offices and Warehouses:

Bakersfield, Calif. Ventura, Calif.

Cable Address: "Smithco, Whittier"

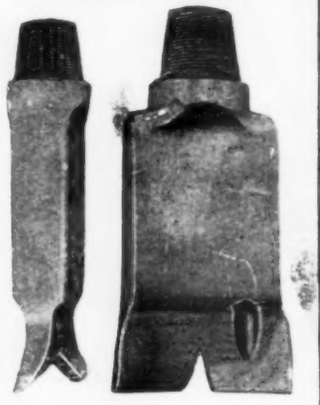
Oil Well Supply Co., Exclusive Sales Distributors, Outside of California, for H. C. Smith Coring Equipment and Demountable Drilling Bits.

SPEED

Drills

60% to 100% Faster.

CUTS 1/2 the number of bits.



. . . . . *the* **remarkable SPEED APPLEMAN Gumbo Bit is due to:—**

Self-sharpening cuttin gedges Front edges hard-surfaced permitting wear on back to retain cutting edges.

This feature also gives a *decidea cutting effect on the side walls of the well*, rather than the scraping action of the average fish-tail.

Speed also comes from the fact that wells are *"bored to size"* . . . . and effectively and immediately mudded-up.

Gives the benefit of a short shank bit, without it being a short shank bit.

No whipping effect, the displacement of bit being reasonably large . . . . a steadier boring bit.

APPLEMAN GUMBO BITS so perfectly drill the hole that seldom, if ever, is it necessary to ream. Ask the many big company users in wells of 3600 feet an dover.

* * * * in *drilling*

SPEED is MONEY

Write TODAY for folder and names of prominent users.

B.K.APPLEMAN

BEAUMONT, TEXAS

Squeaks from the Bull Wheel

In a country newspaper appeared the following advertisement:

"The man who picked up my wallet in Fore Street was recognized. He is requested to return it."

The next day this reply was published:

"The recognized man who picked up your wallet requests the loser to call at any time and collect it."

"Tommy, you have no good excuse for staying away from school yesterday."

"Well, it ain't my fault."

"It isn't? Why?"

"'Cause I done my best to think of a good one."

The farmer's pink cheeked daughter was coming up the lane. She was clad in grimy overalls, from the pockets of which bulged huge bunches of waste and sundry wrenches and pliers. In her hand was a dirty satchel rattling with an assortment of iron tools.

"Where are you going, my pretty maid?" I asked.

"I'm going a-milking, sir," she said.

"But why the tools?"

"Trouble," she said, "with that darned old milking machine again."

He—When I dance with you I feel as though I were treading on clouds.

She—Don't kid yourself; those are my feet.

Roughneck: "What is a petroleum engineer?"

Driller: "A geologist who has seen a drilling rig?"

"Does the defendant understand what an alibi is?

"Yassuh! Dat's provin' dat you was at a pra-r-meetin' whar' yo' wasn't, in ordah to show dat you wasn't at a crap-game, whar' yo' was."

"I hate that man."

"Why, what has happened? I thought you liked him so much."

"He said I couldn't whistle and just to show him I could, I puckered up my mouth just as sweet and round, and what do you think he did?"

"How should I know?"

"Well, the fool just let me whistle."

"Give the principal parts of the verb 'swim'."

"Swim, swam, swum."

"Good. Now give the principal parts of the verb 'dim'."

"Aw, quit your kiddin'."

A small schoolboy came home one evening and said to his father: "The world is round, isn't it?"

"Yes, son," the father agreed.

"Then if I want to go east I could get there by going west, couldn't I?"

"Yes, son, and you'll be a taxicab driver when you grow up."—*Exchange.*

A young lady who wanted to keep up with the latest styles went into a dry goods store and called for a pair of rolled hose. The clerk was equal to the occasion—with a little spare. "Have a seat, miss," he said with alacrity; "we roll them free of charge."

The unusual thing happened in a southern town the other day when a negro woman committed suicide.

"Why is it, Rastus," an old negro was asked, "that so few negroes ever commit suicide?"

"It's dis way, boss; when a white man gets in trouble and sets down to worry over it, he gets desperate and kills himself. When a nigger sets down he goes to sleep."

Pretty Nurse: "Every time I take the patient's pulse, it gets faster. What shall I do?"

Doctor: "Blind him!"

He: "Won't you take off your things and stay awhile."

She: "Say! What do you think I am?"

"Yes, I'm married now."

"What's your wife like?"

"Corn, rye, almost anything."

"With a single stroke of a brush," said the school teacher, taking his class around the National Gallery, "Joshua Reynolds could change a smiling face to a frowning one."

"So can my mother," said a small boy.

Young (??) Lady: "Oh, officer! There's a man following me and I think he must be drunk."

Officer (giving her the once over): "Yes, he must be, drunk or crazy."

"Then it is settled we are to elope at midnight?"

"Yes, darling."

"And are you sure you can get your trunk packed in time?"

"Oh, yes, papa and mama have both promised to help me."

An old lady was walking by the creek and came upon several boys bathing in their birthday suits.

"Boys," she exclaimed, "is it not against the law to go bathing without a bathing suit?"

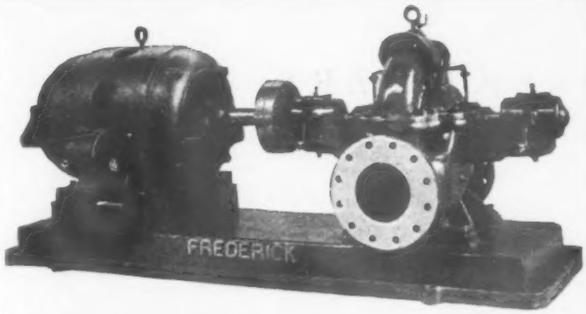
"Yessum," they replied, "but come on in; we won't tell on you."

Johnny, why are you staring so at the minister?

Just waiting to see him eat his head off like you said he would.

"And what parable do you like best, my son?"

"The one about the multitude that loafs and fishes."



Centrifugal Pumps
and
DAN T. MOORE

—Dan T. Moore is the man to consult on all centrifugal pump problems in the mid-continent field. Get in touch with him at three convenient Texas offices:

3701 Esperson Bldg. Houston
730 Allen Bldg., at Dallas
516 Frost Building in San Antonio

FREDERICK PUMPS
THE FREDERICK IRON & STEEL CO. FREDERICK, MD.

Eclipse Force and Sight Feed Lubricators

"Positive Lubrication"

MANUFACTURED IN THE HEART OF THE MID-CONTINENT OIL FIELDS

EXHIBITED AT NATIONAL PETROLEUM EXPOSITION

Eclipse Lubricator Company, Inc.
WICHITA FALLS, TEXAS
Handled by All Supply Houses

Engineers and Manufacturers of Light and Heavy
STEEL PLATE WORK

Vulcan Steel Tank Corp.
TULSA, OKLAHOMA

In the VULCAN Oil & Gas Separator or Trap, the maximum of travel of the gases is obtained. In the 5'0" diam. x 15'6" high Separator, which is the most popular size, a travel of over 24 feet is provided.

The VULCAN Separator embodies the elements of free precipitation of the oil from the gas upon first entering the Trap; absorption against five (5) cylinder walls; scrubbing through chambers having three sets of specially designed ports and, in addition to this, our elements of Patented TRUE-CENTRIFUGAL Mist Scrubbers with Patented CENTRIFUGAL Mist-Traps which entrain and reduce the mist to fluid oil for trapping to the bottom of the Separator.

These Patented elements of the VULCAN Oil & Gas Separator absolutely control the mist, not depending on the free precipitation in the open chamber as in other separators with the result that a large part of the mist is carried over through the gas outlets.

There are five separate and distinct entrainments of the oil as separated from the gas in the VULCAN Separator, each one of which is carried to the bottom of the Trap, with the result that the cleanest possible gas is obtained on leaving the Separator for use at Gasoline Plant or for fuel purposes.

Each and every VULCAN Separator is positively equipped with the TRUE CENTRIFUGAL elements of Mist Separators and Mist Traps and the various operations are so proportioned in their relation to each other that backpressures are entirely avoided.

—VULCAN—
TANKAGE

INDEX TO ADVERTISERS

J. S. Abercrombie .....
Acme Fishing Tool Company.....
Ajax Iron Works .....
Alco Oil Tool Company.....164-165
Allis-Chalmers Manufacturing Co...136-137
Allsteel Products Company .....
Alten's Foundry & Machine Works....275
Aluminum Company of America.....
American Askania Company.....274
American Association of Petroleum Geologists 278
American Cable Company .....
American Iron & Machine Works.....
American Hammered Piston Ring Co..167
American Liquid Meter Company.....
American Steel Works 280
American Steel & Wire Company.....205
American Tank Company 192
American Telegraph & Telephone Company .....
American Well Works 260
Andrews Steel Company 108
B. K. Appleman 288
Paul Arbon Company .....
Athey Truss Wheel Company .....
Axelson Machine Company 221

Baash-Ross Tool Company .....
Baker Oil Tools Incorporated .....
Baldwin Chain & Mfg. Company 46
William S. Barnickel & Company.....
Bartlett-Hayward Company 15
Beaumont Iron Works 21
Beebe Brothers 269
Bessemer Gas Engine Company.....
Bethlehem Steel Company 42
Black, Sivalls & Bryson 263
Board of Lease of University Lands ..
Boykin Machinery & Supply Co. ...
Braden Steel & Winch Company..... 44
Braden Steel Corporation 210
The Brewster Company, Inc. 17
Bridgeport Machine Company .....
Broderick & Bascom Rope Company....273
Buckeye Traction Ditcher Company.... 28
Buffalo Bolt Company 265
Burns Tool Company 248
Butler Manufacturing Company .....
A. M. Byers Company .....
Byron Jackson Company .....4 and Front Cover

California Pipe Line Machine Company.246
Cameron Iron Works .....
Phillip Carey Company .....
Central Alloy Steel Corporation.....143
Chain Belt Company 110-111
Chicago Bridge & Iron Works.....
Chicago Pneumatic Tool Company...Insert
Clark Brothers Company 243
Climax Engineering Company 79
Coastal Oil Finding Company 282
Colona Manufacturing Company 49
Columbia Nut & Bolt Company.....260
Continental Motors Corporation.....
Continental Supply Company.83-85-87-89-91
Fred E. Cooper 239
Cooper-Bessemer Corporation 106-107
Cranfill-Reynolds Company 249
Crescent Belt Fastener Company..132-133
Curtis & Curtis Company 244
Cyclone Fence Company 269

D. & B. Pump Company.....
Darling Valve & Manufacturing Co..102-103
E. M. Dart Manufacturing Company.. 32
Diamond Drill Carbon Company 266
Mrs. A. Diemar 282
Dragon Manufacturing Company 265
Drane-Humphrey Company 23
Dresser & Gorton, Inc. 253
S. R. Dresser Mfg. Company.....125
The Drillometer Company 117
E. I. du Pont de Nemours & Company, Inc. 225

Eclipse Lubricator Company 289
Economy Pump Company 247
Economy Pump & Oil Tool Company.. 25
E. H. Edwards Manufacturing Co.....233
Electric Controller Manufacturing Co..
Elliott Core Drilling Company..... 47
Emsco Aircraft Drilling Company.....
Emsco Derrick & Equipment Co. 95
Exchange National Bank, Tulsa..... 18
Expert Mechanic Shop 282

Fenwick-Reddaway Manufacturing Co.
First National Bank, Houston..... 99
Fort Worth Laboratories 282
Franklin Valveless Engine Company...213
Frederick Iron & Steel Company.....289
Frick-Reid Supply Corporation ...160-161

Garlock Packing Company .....
Gardner-Denver Company 245
Gaso Pump & Burner Manufacturing Company 3
General Electric Company 148-149
Fred I. Getty 19
B. F. Goodrich Rubber Company.... 40
H. P. Gott Manufacturing Company..258
Greene, Tweed Company .....
Guiberson Corporation 114-115
Gulf Caribbean Steamship Co. 235
Gulf Publishing Company 97-130
Gulf Refining Company 24
Gulf States Utilities Company .....

Halliburton Oil Well Cementing Co...261
Erle P. Halliburton Company .....
Happy Belting Company 206
Hardway & Cathey 282
Haynes Stellite Company 26
Harrisburg Pipe & Pipe Bending Company .....Third Cover
Hazard Wire Rope Company 277
Hercules Motors Corporation .....
Hercules Supply Company .....
Hercules Tool Company 159
Heydrick Mapping Company 282
Hill, Hubbell & Company.....168-169
Hilton Hotels .....
Hinderliter Tool Company .....
Hirsch, Brown & Susman 282
George O. Hollow Company 266
Charles N. Hough Manufacturing Co. 93
Howard Smith Company .....
Houston Engineers .....
Houston Ready Cut House Co. 183
Hughes Tool Company .....Fourth Cover
Humble Oil & Refining Company.....
Hyatt Roller Bearing Co.....Second Cover

Imperial Royalties Company .....
Ingersoll-Rand Company .....Insert
International Cement Corporation..... 30
International Derrick & Equipment Company 5-6-7-8-9-10-11-12
International Minerals & Metals Corp..175
International Petroleum Exposition...
International Supply Company.....193

Byron Jackson Company .....4 and Front Cover
Jarecki Manufacturing Company .....
Jensen Brothers Manufacturing Co....256
S. M. Jones Company 43
Jones & Laughlin Steel Corporation... 45

Kennedye-Plumb Corporation 196
Kerotest Manufacturing Company 41
Kirk-Morrow Iron Works Company....191

Landis Machine Company .....
Larkin & Company 281
Layne & Bowler Company 144-145
Le Bus Rotary Tool Works 13
Lincoln Electric Company .....
Linde Air Products Company .....
Link Belt Company 126-127
Lone Star Gas Company 38
Lucy Products Corporation.....
Lufkin Foundry & Machine Company..113

MacClatchie Manufacturing Company...120
Maintenance Engineering Corp. 268
McCollum Exploration Company 282
J. H. McEvoy Company .....
Ollie McPeak .....
Majestic Hotel 282
M-K-T Railway .....
Maloney Tank Manufacturing Co.....255
Martin-Loomis Corporation 185
Martin Wagon Company .....
Mason Regulator Company 36
O. E. & G. M. Maddox 282
Metric Metal Works .....
Mills Alloys, Inc. .....
Miller Combination Bailer & Pump Co..
Mission Sales Company .....
Missouri Portland Cement Company....
Lee C. Moore & Company 27
Munger Oil Information Service.....282
Murray Tool & Supply Company.....151

National Lumber Manufacturers Association 189
National Petroleum Engineering Co...264
National Supply Companies 171
National Tank Company 283
National Tools & Metals, Inc. 50
National Transit Pump Machine Co....
National Tube Company 48
New Jersey Asbestos Company 250
Norvell-Wilder Company .....

O. C. S. Manufacturing Company 194
Oakite Products, Inc. .....
O'Brien Steel Construction Company...
Oil Well Supply Company 52
Oklahoma Iron Works 172-173
Oklahoma Gas & Electric Company...155
Oxweld Acetylene Company .....

Parkersburg Machine Company 278
Parkersburg Rig & Reel Company....209
Patterson-Ballagh Corporation 152-153
Pattin Brothers Company 179
Pecos Valley Power & Light Company..
Peden Iron & Steel Company 278
Penberthy Injector Company .....
Petroleum Rectifying Company.....201
Petroleum Equipment Company 280
Pittsburgh-Des Moines Steel Company..272
Pittsburgh Equitable Meter Company..105
Pittsburgh Screw & Bolt Corp. 49
Pittsburgh Steel Products Company....129
Pittsburgh Valve, Foundry & Construction Company 241
Pratt & Whitney Company 139

Quaker City Rubber Company .....
Quasi-Arc, Inc. 163

Reed Roller Bit Company .....
Reading Iron Company 34
Reagan Forge & Engineering Co. 39
Joseph Reid Gas Engine Company.....279
C. A. Reinhard 270
Republic Supply Company 229
Republic Iron & Steel Company .....
Resistcor Engineering Corporation 29
Rodless Pump Company 230-231

Shaffer Specialty Company 176-177
Shaffer Tool Works .....
Sheldon Machinery Company 156-157
Sinclair Refining Company .....
S-K-F Industries 16
Skelly Oil Company 14
A. O. Smith Corporation .....
Smith Separator Company 257
H. C. Smith Manufacturing Company..287
Howard Smith Company .....
South Chester Tube Company 140-141
Southern Engine & Pump Company...262
Southern Mill & Manufacturing Co. ...187
Spang & Company 37
Spang, Chalfant & Company 118-119
Eugene C. Stacy 252
Star Drilling Machine Company 217
Jesse R. Stone 282
Stoody Company 81
Sullivan Machinery Company 259
Sullivan Company 276

Taubman Supply Corporation 271
Templeton, Kenley & Company 258
Texas Creosoting Company .....
Texas Power & Light Company .....
Thrift Corporation 31
Timken Roller Bearing Company 20
Titusville Iron Works 251
Triad Products Company 282
Trimont Manufacturing Company .....
Truman-Smith Construction Company..267
Trumble Gas Trap Company .....
Twin Disc Clutch Company 181
Tyler Tube & Pipe Company 265

Union Carbide & Carbon Corporation...
Union Wire Rope Corporation 35

Vez Company .....
Victaulic Company 237
Victor Balata & Textile Belting Co... 77
Vulcan Steel Tank Corporation.....289

Wagner Electric Company 100
Waukesha Motor Company 284
John F. Wienzierl.....282
C. W. Webster 282
Wertzberger Derrick Company 147
Westinghouse Electric & Manufacturing Company 22
West Texas Utilities Company .....
Calvin Wheat Studios 282
Wickwire-Spencer Steel Company .....
Wico Electric Company .....
Wiemann-Kemmerer-Wright, Inc. .....
J. H. Williams & Company .....
Williamsport Wire Rope Company.....
W-K-M Company 33
Word Specialty Manufacturing Co..122-123
Wyatt Metal & Boiler Works 135

Yale & Towne Manufacturing Co. 269
Young Engine Corporation 264

Zero Hour Torpedo Company.....

Another Harrisburg Coupling

"I never knew the real meaning of coupling dependability, coupling uniformity and coupling economy until I began buying my couplings from a company that operates its own open hearth furnaces, rolling mills and forge shops.

"Just try Harrisburg Forged Seamless Steel Couplings and see for yourself."

"Harrisburg is the real pioneer when it comes to forged seamless steel Couplings and I tell you—there's a big advantage in dealing with a firm that produces its own steel and controls every operation in the making of its finished products."

HARRISBURG PIPE & PIPE BENDING COMPANY

HARRISBURG, PA.

Fully Equipped with Our Own Open Hearth Furnaces, Rolling Mills and Forge Shops

Distributors:

HARRISBURG PIPE & PIPE BENDING CO. OF TEXAS, Inc.
Houston, Texas

HARRISBURG SUPPLY CO.
Tulsa, Okla.

George J. Hausen, Inc., San Francisco, Los Angeles and Taft, Calif.

HARRISBURG

Forged Seamless Steel Couplings

Only 12 minutes required to shut-in this wild well with a~

HUGHES VALVE

Sold by dealers Everywhere

This picture shows a 12½" Hughes Drilling Valve on the Mission Drilling Company's well, Heard No. 1 Refugio, Texas, and was made after the well had run wild, blowing 2600 feet of 4" pipe out of the hole and cutting almost through the body of an 8¼" valve formerly on the well.

Pressure was estimated at between 1500 and 2000 pounds.

The 8¼" valve was backed off and two 12½" Hughes Valves made up on a swedge and joint of pipe snubbed onto the casing and tied down.

The Hughes Valve was closed in 12 minutes and made a perfect shut-off.

When the well ran wild, the derrick was blown down, and several thousand yards of sand covered the surrounding territory.

HUGHES TOOL COMPANY

Branch Plants
Los Angeles, Calif.
Oklahoma City, Okla.

MAIN OFFICE AND PLANT
HOUSTON, TEXAS

Export Office
New York City, N.Y.